Telephony.

THE AMERICAN TELEPHONE JOURNAL

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An Achievement in Publishing.

What advantage has the boy who takes his father's watch apart over the publisher of a telephone paper? This is a new conundrum, right out of the box, and before anyone can hazard the wrong answer we hasten to supply it, according to the book. The boy can take what is coming to him, and let the proud parent carry the pieces to the jeweler for reassembling; while the publisher has to put the thing together again himself.

When the date of the national convention was postponed to February 8, 9 and 10, the staff of TELEPHONY was caught for a short turn. All plans were made for the biggest and best convention issue ever produced. Feature stories, news stories, typographical arrangements, illustrations, were all under way, or in hand for this special purpose; advertising was special in space and arrangement. Then early Monday afternoon came the news—convention postponed until February 8, 9 and 10. That meant quick work.

All departments of TELEPHONY had to turn to with a will, and make an absolute revision of plans—and then execute the new plans in the shortest time on record for a weekly journal.

It was determined to issue TELEPHONY on Wednesday, a day ahead of the usual printing, which is scheduled for Thursday. In this way notification would reach men in the remote parts of the field in ample time to prevent them from starting for Chicago under the impression that they would find a convention ready to assemble on Tuesday. To this end were bent all the efforts of the staff—and successfully. Advertisers were notified, and their co-operation in the emergency was prompt and gratifying. An entirely new makeup, using a large amount of material not scheduled for this issue, was prepared. The printer's schedule was revised, and the physical handling of the typographical matter, printing and mailing of tons of copies was rushed through in a time so limited as to resemble the rush on a big newspaper extra.

TELEPHONY has broken a publishing record to save its readers the embarrassment which their failure to receive timely notification of the change in convention date would cause; and, naturally enough, takes some pride in the achievement. It will be a most gratifying feature of this emergency work if the readers agree that this complete revision of plans has been executed in such a way as to

DIRECTORS POSTPONE NATIONAL CONVENTION TO FEBRUARY 8, 9 and 10.

Official Statement, Furnished by Officers of the National Independent Telephone Association.

Since the call was issued for the convention of the National Independent Telephone Association to be held January 17, 18 and 19, 1911, conditions have arisen in the telephone field relating to legislation and other matters requiring careful and thorough consideration in order that the same may be fully presented to the annual convention, and intelligently discussed and acted upon thereat.

It was determined at a meeting of the Board of Directors, held in Chicago on January 9, 1911, and at the request of a large number of operating and manufacturing companies, that it was impracticable to make an intelligent analysis of the conditions by the time set for the convention, January 17, 18 and 19. Realizing the importance and desirability of such an analysis, it was decided to postpone the convention until February 8, 9 and 10, 1911, at which time it is hoped and expected that a very large attendance of Independent telephone men will be present, and all such matters can be fully and intelligently acted upon. This action was deemed to be in the interest of all Independent telephone companies.

preserve the standard of value and timeliness at which the paper aims in every issue.

What About Individual Rates for Chicago?

Hearings now going on in Chicago bear definitely upon the matter of the total revenue which the Chicago Telephone Company may be allowed to earn on its investment in the city. The company is trying to upset the recommendations of Mr. Hagenah, whose report, however, seems to be entirely satisfactory to the subcommittee, and is receiving its cordial support.

The questions up for determination now are general questions, for the determination of which ample data seem to be available. The complication will arise when detailed rate schedules come up for determination. Whether all rates shall be maintained as they are now, or some raised and some lowered, is a practical problem of the greatest difficulty. The Chicago Telephone Company has revised its whole system of accounting to provide data covering this question. It remains to be seen to what extent, and in what manner such data will be used, and how the final action on the specific charges for the numerous classes of service will affect the total revenue. It is comparatively easy for a council committee to put its foot down and say income shall not exceed so much. But when it attempts to readjust detail rates to provide such an income within a fair approximation, it has something of a problem on its hands.

Afraid It's a Trust—Michigan, Attention!

The Michigan State Telephone Company has petitioned the Circuit Court of Oakland county, at Pontiac, Mich., to determine if, in purchasing the Oakland County Telephone Company, an Independent concern, it is violating the laws of the state. The particular laws in question are Act 255 of the Public Acts of 1899, and Act 329 of the Public Acts of 1905, which is supplementary thereto. The former defines a trust and prohibits the making of certain contracts to limit or reduce the production or increase or reduce the price of any merchandise or commodity. The latter act declares void all combinations for the purpose of establishing and maintaining a monopoly of any trade pursuit or business. The provisions of both acts are extensive. The petition asks that the attorney general be cited to appear in the case and express an opinion on the subject.

These proceedings are certainly the most remarkable ever begun by the telephone monopoly. A corporation whose avowed ambition is to be a trust, goes into court with an innocent air and asks, "Am I, or am I not?" From our knowledge of the operations of its monopolistic mind, we feel sure it has some assurance that answer will be, "You are not," or else it would keep out of court. To an outside observer, it looks as if the Michigan Telephone Company was seeking to have tested in a friendly suit an act that it was afraid to have raised against it by hostile parties. The attorney general should ask the court to refuse to take jurisdiction of the question until raised in an adversary proceeding. If he does not the court of its own motion should refuse to act. The danger of the proceedings contemplated is that in the event of a decision in the lower court favorable to the sale there will be no party sufficiently interested to appeal the case to the Supreme Court. Thus an illegal transaction may be legitimatized. We refer this matter to the immediate attention of the Independents of Michigan.

The Trusts Facing the Last Ditch.

The hearing in the Tobacco Trust suit before the U. S. Supreme Court has begun. This is the first act in the forthcoming general campaign of the U. S. Government against the trusts which are exploiting the pocketbooks of the American people.

A strong article by James Creelman, the famous correspondent, appearing in the Hearst papers on January 11 says:

"Attorney General Wickersham has declared that when the result of the battle is known the Government will proceed against all illegal trusts and combinations, large and small"; and, again:

"The Government insists that no state can authorize a corporation to restrain or hinder interstate commerce."

This shows the absolute purpose of the Government to overthrow the contention of the Bell telephone company that it can proceed to form mergers if not opposed by public sentiment in particular states where such mergers are effected.

Mr. Creelman's report says, regarding the Tobacco Trust:

"There are sixty-five defendant corporations and twenty-nine individual defendants in the tobacco case. The Government has shown that these corporations have been banded together by consolidations and by ownership of each other's stock, and that this vast league of money and energy, which has destroyed so many competitors, solicits orders in many states."

There seems to be a distinct parallel here between the organization of the Trust now pleading before the highest court of the land and that of the telephone trust, which is likely to be attacked by the Government immediately after a decision in the Tobacco case. Before the operating branch of the Bell telephone company is involved in the Government's pending actions it is likely that the manufacturing branch will be brought before the Supreme Court along with other electrical corporations which are claimed to have built up an organization tending toward monopoly in the business of furnishing electrical supplies.

The political situation is realized by acute authorities to depend, to a large extent, upon the outcome of this litigation, although corporations which are honestly and conservatively conducted have nothing to fear. The American people will never stand the assumption by financial interests of a right to capitalize the opportunity to exploit the public for their personal gain.

There can be but one ultimate issue of these trust prosecutions—a fair deal for the public, and equal opportunities to engage in business for all—and upon these broad grounds one may safely rest a prediction on the trials which will be made under the Sherman Law.

A New Exchange in Eastern New York

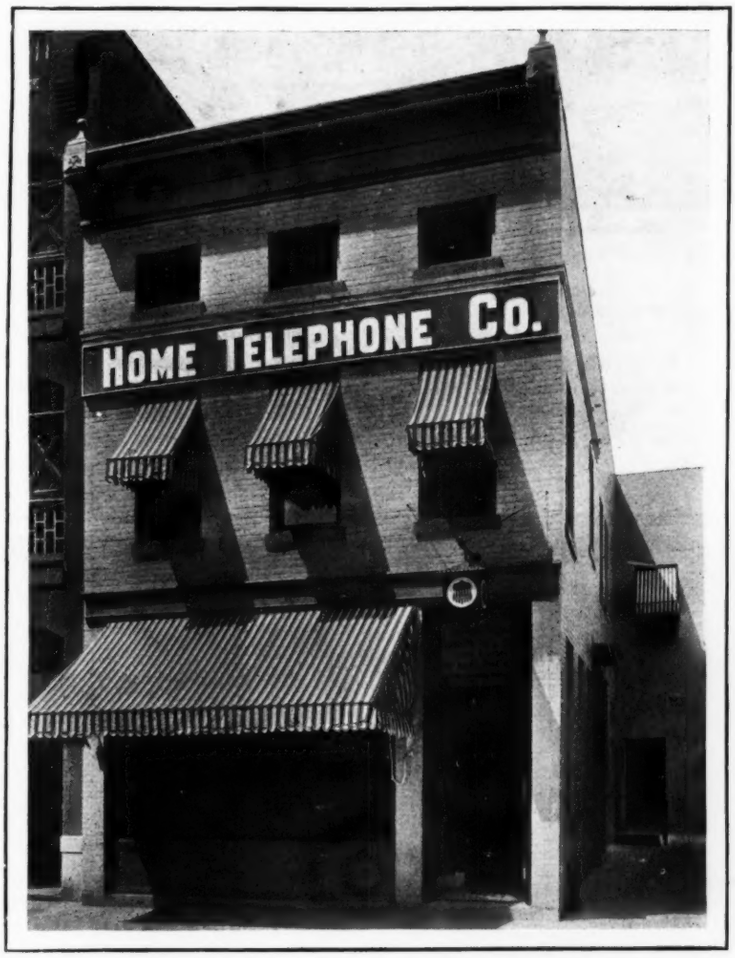
High Grade Equipment in Reconstructed Building Basis of a First Class Service.

The Commercial Union (Independent) Telephone Co., of Troy, N. Y., is soon to formally open its new exchange building at Glens Falls for the inspection of the public. The building, which was remodeled this summer, has been converted into a modern exchange and the latest type of equipment has been installed throughout.

The Glens Falls branch of the Commercial Union company has enjoyed a constant and altogether satisfactory growth. Its subscribers have so steadily increased in number that it became apparent about a year ago that new and larger quarters would be necessary. The old exchange at Warren and Ridge streets was completely outgrown and arrangements were, therefore, made for the purchase of the building at 18 Exchange street.

As soon as the previous tenant vacated the building the remodeling process began. As a result the Commercial Union company now has at Glens Falls one of the most complete and handsome office and exchange buildings in its entire system. No detail has been overlooked, nor expense spared, to accomplish the end sought, and there remains nothing to indicate that the building was not erected especially for its present purpose.

The cellar was lowered three feet and the roof was raised eight feet. By the latter operation an ample attic was created and provision made for ventilating the operating room. The windows are of wire glass, set in steel frames, indicating the precautions taken everywhere to make the structure fire-proof. A cement walk on the north side of the building leads to a rear entrance. All the walls are steel lined, except those in the office, which are handsomely finished in decorative plaster.



New Glens Falls Exchange of Commercial Union.

The front of the lower floor is given up to the business office. A hallway extends through to the rear of the building, and opening out of this are other offices, including that of the district manager, Mr. H. G. Hawley. At the rear is the terminal room, occupied by the wire chief and his assistant. Here is located one of the best testing desks and sets owned by the company.

The stock room is in the basement. This department is thoroughly systematized as are all the other departments of the company. The cable vault and storage batteries are also in the basement. Twenty cables now lead into the vault, and provision is made for many more as the growth of the system necessitates their installation.

On the rear of the second floor is the operating room. The switchboard is a three-section standard, harmonic four-party board, made by the Dean Electric Co., of Elyria, Ohio. It has been in operation about six months. Sixteen operators are now employed by the company. The board is so arranged that it may be enlarged at any time, and, judging from present indications, another section will probably be added soon.

Adjoining the operating room is the toll board room, where two operators handle the growing toll and long distance business in and out of Glens Falls. Near by is the rest room for the operators, fitted up in a comfortable manner and offering every opportunity for recreation or repose.

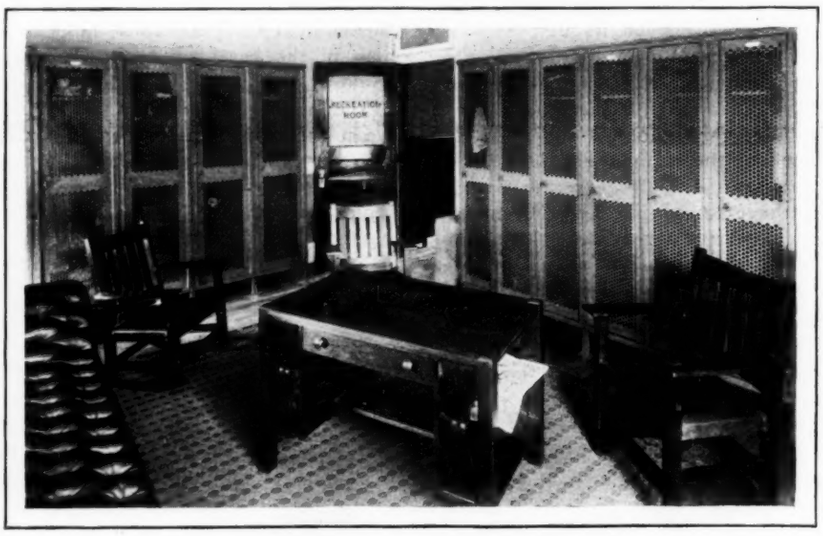
E. L. Grauel is general manager of the Commercial Union system, with headquarters at Troy. Mr. Grauel is a telephone operator of wide experience, and the prosperity of the company is, in large measure, due to his ability and conservative management. The Glens Falls district, which includes also Hudson Falls, Fort Edward, Lake George and Warrensburg, is under the direct supervision of Mr. Hawley, who has made gratifying progress all through his field.

The Commercial Union system, of which the Glens Falls plant is a part, is one of the so-called Albany Group of local and long distance companies. Through the Independent Union and other toll and long distance lines it has established a comprehensive service over practically the entire state.

The officers of the Commercial Union company are as follows: President, James H. Caldwell; first vice-president, Wm. Connors; second vice-president, Irving H. Griswold; treasurer, John J. Hartigan; secretary and general manager, E. L. Grauel. The directors are: James J. Hartigan, James O'Neil, William Connors, Cornelius V. Collins, T. M. Brush, Hon. Charles W. Cool, Edward F. Murray, Arthur Mac-

Arthur, James H. Caldwell, Peter McCarthy, William C. Geer, William D. Mahoney, Hon. Edgar T. Brackett, Brodie G. Higley and Irving H. Griswold.

Judging by a comparison of the rest rooms of this exchange with other arrangements for the same purposes appearing the country over, the Commercial Union company should have no difficulty in getting operators who will be a credit to it and make its service appeal to the public on the score of quality. The use of comfortable and good furniture in the operators' rest room is decidedly a good plan from the business point of view, and in living up to this principle the Commercial Union company sets a good example. The arrangement of the metal lockers about the walls of the room prevents the decoration of the walls, but from the standpoint of utility it is a thoroughly practical thing to do. The very name upon the door—"recreation room"—instead of the commonly used, "rest room," is a hint in the right direction. No doubt it gives a lift to the spirits of the operator who enters after her turn at the switchboard, and prevents many a thought that telephone work is unduly tedious and fatiguing.

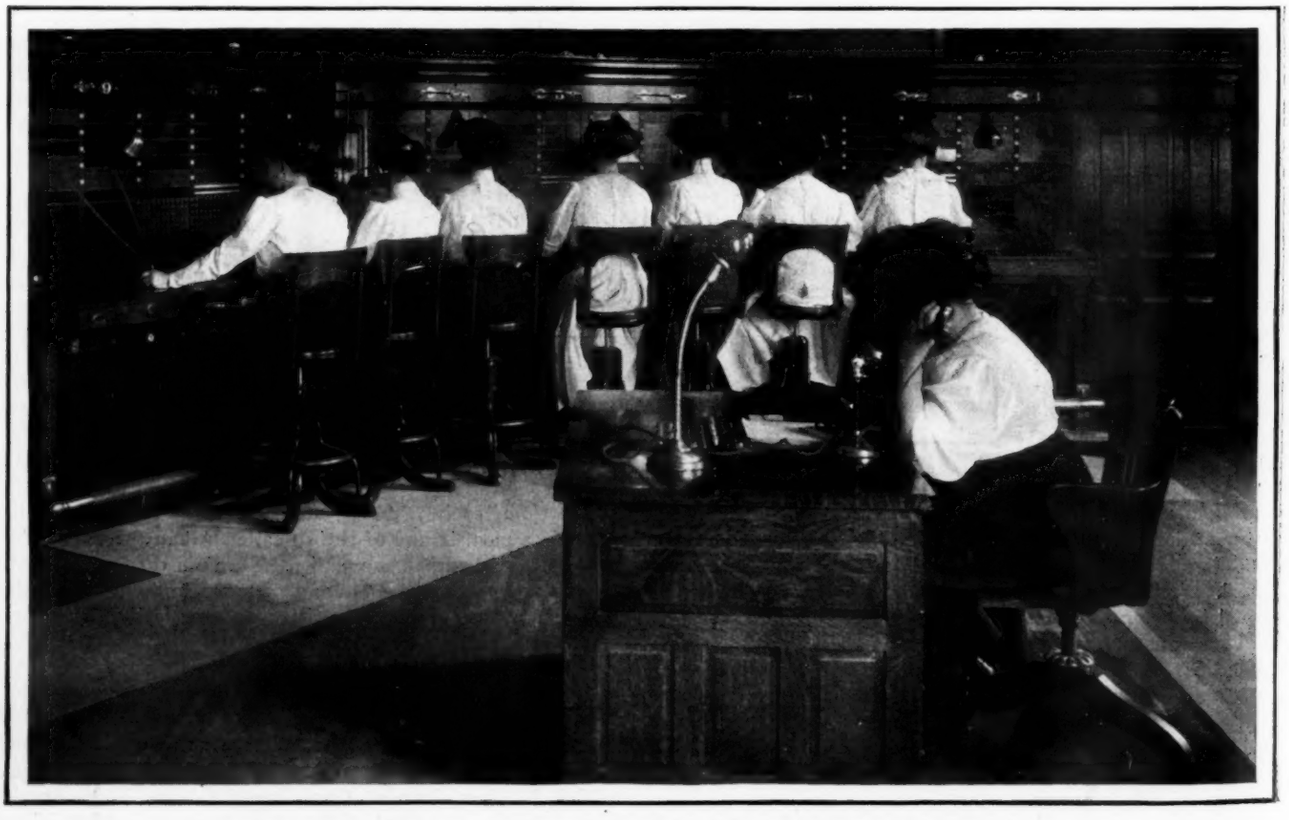


Operators' Recreation Room.

The switchboard embodies the well known features of Dean construction, many of which are evident in the general view here reproduced, showing three sections and the chief operator's desk in the foreground. The six panel sections are equipped for three operators' positions each. The present subscribers' multiple equipment is 720 lines.

Familiar features of Dean construction include special mounting of relays for accessibility; arrangement of cords for easy replacement; special lamp caps; cord testing circuit, etc., are all embodied in this board.

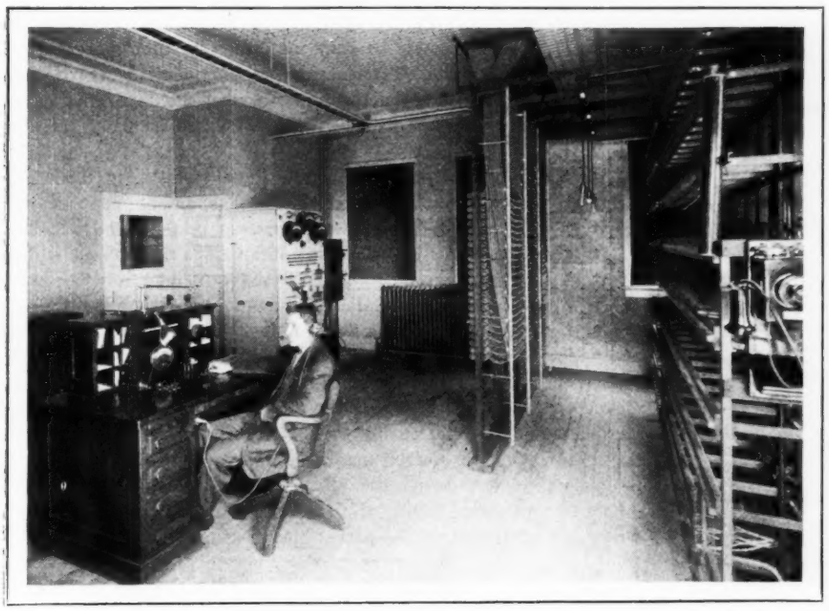
The individual lighting for each position is a departure from the trough reflector more commonly encountered nowadays, but the shape of the reflector gives far better lighting than was ever obtainable in the old days of individual position lights with a reflector which simply threw a great portion of the light into the operator's eyes. This new form of reflector concentrates the greater part of the



Operating Room, Showing Main Switchboard and Chief Operator's Desk.

light upon the multiple, but incidentally sheds sufficient light for working purposes upon the answering jacks, cords, etc., in connection with the general lighting of the room.

The terminal room contains ample space for equipment installed with room for growth. A good feature is the strong light which prevails, and the general appearance of neatness. The lighting is improved by the use of light colored walls and ceiling, and the white paint on woodwork and white power panel contribute to the general effect, which are certainy not without their influence on standards of maintenance which can be kept up under such conditions.



Room of Wire Chief and Assistant.

For handling long distance business, which is being steadily developed by the Commercial Union company, a board of the modern Dean type especially suited to conditions in an exchange of this size has been installed. The switchboard is isolated to give the necessary feature of seclusion, which secures the best operating of long distance lines, without disturbing operators engaged in handling local traffic.

Novel Features of the Directory of a Small Company Operating in the South.

The Independent Telephone Co., Scottsboro, Alabama, has a good many original ideas in a directory of eight pages and cover. The subscribers' list begins on the outside front cover page, while the inside of the front cover carries advertising. There are eight pages of names and advertisements within the cover, printed on ordinary paper. The outside back cover contains a list of toll points and rates, while the inside of the back cover is given up to educational matter for the benefit of subscribers.

The Independent company gives some good straight talk such as the following:

"This company does not consider a school teacher who is boarding with you or a hired man or a hired girl, or a visitor, a member of your family, and they will have no right to use your phone, on your free privileges, for anything except the subscriber's business.

"Subscribers must pay for the service of all non-subscribers used from or by means of their instrument.

"Do not ask or expect the operator to visit with you, as she has a great many more subscribers who are just as anxious to get their calls through as you are yourself. When the operator answers you by calling the name of the station which you are ringing for, give her your call as promptly as possible and do not make the mistake that several do of asking the following questions: 'Is this central, or Hollywood?' or whatever the station may be.

"The above questions are unnecessary and delay the service.

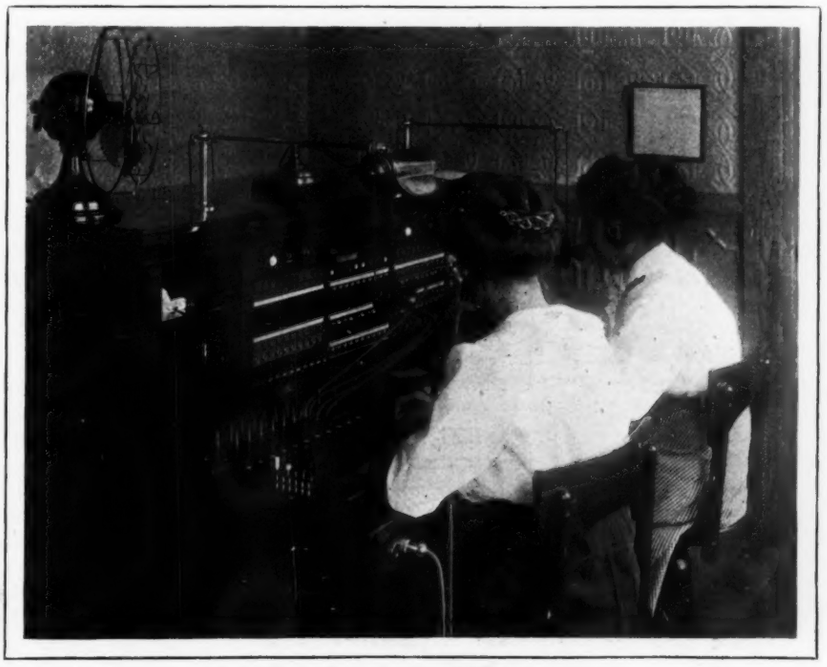
"Do not hold the line over five minutes, as others may be waiting to use it. A charge of ten cents per minute for all time over five minutes will be made.

"Do not leave receivers off the hook when not in use, as it tends to destroy your batteries and impairs your service.

"The Central Office is no information bureau, and subscribers should not worry the operators with questions."

This Beats the Classic Stove Leg Yarn.

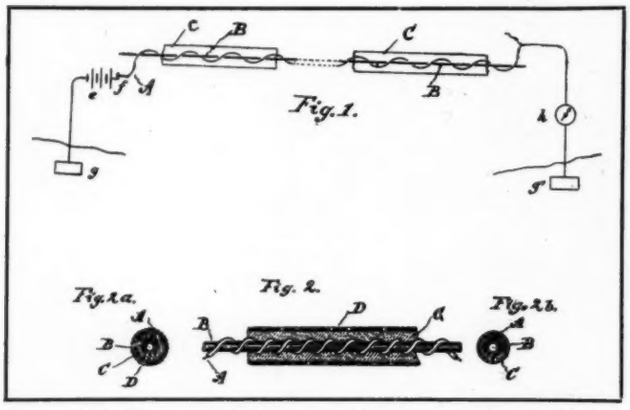
A Seattle subscriber, having moved his house about six feet, and thinking himself something of a telephone man, attempted to place his telephone in service. He seemed to understand that a ground was necessary, so filled a condensed milk can with earth and nailed it to the side of his house, placing the end of the ground wire in the can, but he had to follow up his own engineering with a complaint that his bell did not ring.—*Pacific Telephone Magazine.*



Two-position Toll Board—Glens Falls Exchange.

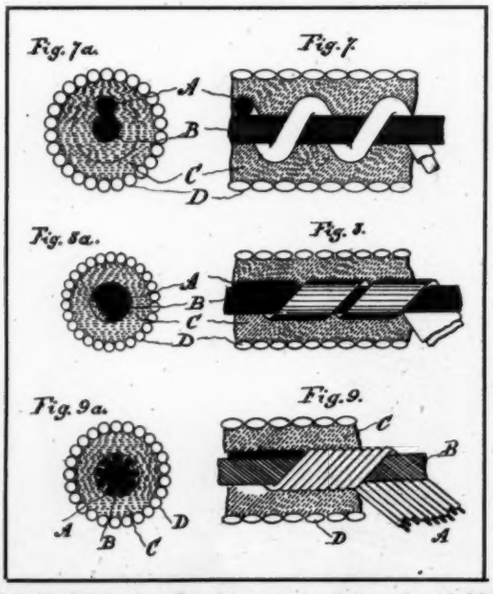
A New Device for Increasing the Range of Transmission by Neutralizing the Effects of Distributed Capacity.

Professor J. H. Cuntz, of Hoboken, N. J., has been awarded patent No. 977,713, dated December 6, on an electric cable which represents the embodiment of a means for neutralizing the effects of distributed capacity with suitably distributed inductance. The following descriptive matter is based upon statements contained in his patent, from which the illustrations are also drawn:



Theoretical Diagram—Neutralizing Capacity by Using Helical Conductor.

In the transmission of varying electric currents along conductors, the influences which prevent their passage without modifications become of serious importance when the length of the conductor is relatively great. These modifications are such as distortion and attenuation, which are terms now generally understood. The cause of such modifications is the combined influence of the resistance, the capacity and the inductance of the line. In ordinary long-distance lines, particularly on submarine and underground cables, the capacity and the resistance are primarily instrumental in producing attenuation, while the capacity causes distortion also. On such lines



Helical Conductor Construction in Submarine Cable.

the capacity is substantially uniformly distributed along their length.

The present invention relates to the construction of cables for wholly or in part counteracting the effects of the capacity. These constructions of cable are such as would be used in the actual embodiment in systems of long-distance transmission of electrical waves.

The primary object is to increase the inductance of the line sufficiently to substantially or partially, as the case may demand, counteract the distributed capacity of the line. But in various types of lines this capacity varies between wide limits.

Professor Cuntz carries his conductor in a helical path which increases the inductance of the line, and by using a core of paramagnetic material, about which the conductor is helically wound, is able to very materially further increase the inductance. As the electrical and magnetic elements of this construction can be predetermined, arrangements of the parts of the cable can be made with a view to securing definite results.

Of the accompanying illustration Figs. 1 and 2, in the theoretical diagram, relate respectively to the embodiment of the invention in a long-distance transmission system, and a cable. In Figs. 1 and 2, *C* represents insulation, *B* a core about which the conductor is wound. Core *B* may or may not be iron, depending upon the amount of inductance desired. If of iron, it is preferably composed of fine wires. Figs. 7, 8 and 9 represent the embodiment of this invention in a cable. The only difference in the figures is the disposition of the conductor, except that in Figs. 7 and 8 the strands of the core are simply indicated as parallel to its axis, whereas in Fig. 9 the strands are shown in a preferred arrangement.

Calculations showing the effect of this type of construction upon a submarine cable of the class indicated by the illustration are presented in the patent specifications.

"Jenny," the Imperturbable, Interests the Telephone Users of Omaha.

Receiver Lysle I. Abbott of the Omaha Independent Telephone Co., gets into every number of *The Automatic* some very ingeniously written matter designed to interest local people in his telephone service. The December number quotes an article written in a spirit of intense sympathy with the abnormal trials which sometimes come to the operator in the manual exchange, and then goes on to tell in humorous vein how the taciturn and nerveless Jenny, Mr. Abbott's name for the machine which does the switching in the Automatic exchange, bears up under these conditions. Says the article:

"Jennie has no dear ones sick at home. Rain nor sleet nor snow nor blizzard disturb her tranquil life—midnight emergencies do not distress her—she faints not, to be revived with nourishment—no insidious poison reaches her—she has no throat to choke nor eyes to blind—and above all, she has no loving parents to see her daily sacrifice to duty, and no future generations to suffer through her sacrifice.

"'The hills rock-ribbed and ancient as the sun' are her parents. Man's workshop is her cradle. When her span is done, there are no breaking hearts, no empty chair, no headstone on the hill."

Knoxville, Tenn., Company Completes Another Important Trunk Line Opening Up Big Territory.

The People's (Independent) Telephone & Telegraph Co., of Knoxville, Tenn., has just completed another important copper trunk line. This reaches direct to Newport, Tenn., and enables the subscribers of the People's company to communicate with practically all points in eastern Tennessee and as far east as Hot Springs, N. C.

At Newport the line connects with the Citizens' Telephone Co., which has four or five hundred subscribers. Among the principal points now reached by this new trunk line are Greeneville, Cosby, Parrottsville, Salem, Caney Branch, Chestnut Hill and Del Rio, Tenn.; also Hot Springs, Paint Rock, Mt. Sterling and Chestnut, N. C. At each of these points there is an exchange in operation, with connections to all surrounding territory.

The company has recently completed a new line to Middlesboro, Ky., and is preparing to open up a large new territory.

Lest We Forget!

The Story of the Trojan Horse—Beware of the Greeks Bearing Gifts—A Modern and Instructive Analogy—to Anticipate Monopoly and Changed Laws When Political Horses Are Being Swapped in Mid Stream Indicates Brain Softening.

By J. C. Kelsey.

Troy was impregnable.
In vain did the Greeks assault its gates.

For years, the besiegers fought, and the Trojans made merry over their failures.

The Greeks were baffled and were ready to go home.
They were whipped, and had enough.

But before going, they tried one more expedient. They built a great wooden horse, and during the night, they rolled it up to the city gates.

The Trojans believed it was a gift from the gods, and fearing to offend them, hauled the horse within the gates.

In this horse, were armed and trusty soldiers—picked men.

At a predetermined time, they left the horse, attacked the guards, opened the gates, and Troy fell before the eager Greeks.

The scene changes.

Within our memory, the telephone was invented by several men.

But one foxy man got a strangle-hold on the device through our grotesque patent laws. And men's souls were vexed by the Bell Telephone Company.

The Independent telephone movement began.

The promoters, so deified by the Bell, and others started to build up telephone systems.

The Independents were opposed by the Bell. They were ridiculed and reviled, but they went straight on, and soon drove the Bell into New England.

Time after time, the Bell outfit made assaults.

They bought—and bought again.

They fought—and fought again.

They bought, only to find that the flame still smouldered.

They fought and found foemen worthy of their steel.

Fire and destruction broke out again. They turned the floodgates of publicity loose, and went after the banks and the railroads. Every point of attack was maneuvered against.

They sent out their manufacturing plant reserves to the fight, and the great, stupid Western Electric Company, with cut prices, was hurled back.

Then they undertook to buy out a whole section, and gave us the Ohio deal.

In Des Moines, Wichita, Hutchinson and other places, the Bell attacked—and merged with higher rates.

The Ohio deal was taken over by Morgan & Co., after insurmountable legal obstacles prevented the Bell from taking it directly.

They only smothered the fire at these places, because the public is educated to telephone service at reasonable rates.

Another fire will break out and competition will rage again.

After buying up the Ohio plants, the Bell found that they had accomplished nothing from their standpoint.

So Mr. Morgan, Mr. Vail and Mr. Davison, all crafty Greeks from that foreign city called New York, have constructed a great wooden horse, and it is to be tied in front of the La-Salle Hotel, in Chicago, when the convention of 1911 meets.

Will the convention vote to pull that horse within the gates? We hope not!

Within that horse are armed soldiers.
Within that horse is a giant specter called "Nemesis."

Let any Independent man vote to let in that horse, and then go home to tell his people.

Let him remember how he has fought for competition, and let him then go home and say it was all a mistake—that competition is a mistake—that the laws are wrong, and should be changed—that Mr. Morgan and associates are divinely powerful—and that it is human for common people to err.

He will be a jest!

Even God hates a man who puts his hands to the plow and then looks back.

And you may be sure, that the most contemptible person in the world is a turn-coat, whether it involves religion, politics or competition by Independent telephony!

It is all a jest!

Vail jests when he says that improvement in the art has pulled down rates.

Why did he pull them down so low? The Bell companies do not average $40 a station, annually, and they need $50, with their extravagance. And they will get $50 when they get you to admit the defeat and folly of competition!

And Hell will break loose when they raise their rates, too, because people will not stand for a 25 per cent advance.

To anticipate such a raise, when the downward price of everything is imminent, is suicidal.

In the human breast, there lives a natural impulse—"Millions for defense but not one cent for tribute."

That is why we have discontent at Des Moines, and further, a possibility of another exchange.

People will dig up money every time for another exchange, rather than submit to what they call extortion.

The experience of the past teaches nothing—because the public remembers nothing unless it is of vital importance.

When a man carries a chain and ball for years, his gait in the future years of freedom will ever remind him and others of his old servitude.

The Bell put the ball and chain on too many American people—and worse! It will do the same thing again.

That organization has learned nothing. It still dreams of loading the cost of competition and its mistakes upon the people and making them pay for it.

But the people won't pay. To anticipate monopoly and a change in our laws, at a time when political horses are being swapped amid-stream, is another indication of brain softening.

The Democratic party, after eighteen years' disgrace, is not going to fly at the faces of the people. Nor is the disgraced Republican party, in its last chance, going to favor anything which borders on abridging peoples' rights.

Napoleon lost, because his reinforcements came too late. The Bell Telephone Co. is asking for things and concessions at too late a date. The Mark Hanna age is done—it is forgotten!

The Bell requests will not be granted, because they are inopportune—in other words, the Bell is behind the times.

If one could trust the Bell Telephone Co. to do the right thing at the right time, the convention might let in the Morgan-Vail horse.

But they should search the horse very closely before dark falls. If they do not, the morning papers will herald another monumental folly.

The Association, if inclined to let in the Morgan horse, can not bind any one. Let the members of this Association try to realize that the Bell Telephone Co. is not an all-powerful force! Let the members try to realize that Morgan does not have the life or death of any telephone man in his hands!

Let each man speak fully and fearlessly.

Does any one know how Morgan can handle the individual securities of the various companies?

He will have a hard time!

Like all great financiers, he will trade treasury stock!

Any financier, with a treasury full of stock, will cut a wide swath.

If you Independents at the convention want to trade your securities for parent Bell securities, possibly Morgan would and could help.

Do not get God and Morgan mixed up in your minds!

If you can't sell your securities locally, Morgan can not.

All New York is in the way of wealth which centers about deposits from your local banks.

God helps those who help themselves!

And be sure that Morgan and all other great (?) bankers do likewise.

I am afraid a few faithful Association officials have been over-impressed by that great white light.

Don't be afraid!

It is nothing!

The Bell concern has its troubles ahead.

It is a doubtful success

You can bet dollars to doughnuts that a few gentlemen are worrying their Bell heads off.

I do not like the idea of the Morgan-Bell horse being led into the convention by men, who, because they operate fairly large Independent plants, seem to think they represent the entire movement.

Independent Telephony is on the very threshold of success.

It has run the gauntlet. It has *arrived*.

Telephone securities are the very best. The fight on them is over. Why quit just when success is near?

Jeffries could not come back—nor can the Bell!

Merit alone rules.

You can't fool merit.

Our Bell friends have trifled with merit. And their venerable president is wearing sack-cloth and ashes.

In another year he will be lonesomer than the original Monte Cristo ever dared to be.

In another year, a newer and younger man will start out to fail to rehabilitate the fallen fortunes of Bell Telephone.

Just at the critical time will you be fooled?

Independent Telephone Men—a Trojan horse is to be slipped up to the gates of the La Salle Hotel.

Will you take it in?

MORAL:—Beware of Greeks bearing gifts!

D. C. & Wm. B. Jackson Retained by British Government to Advise in Telephone Transfer.

Matters arising in connection with the impending transfer of the system of the National Telephone Co. to the British Post Office have caused the British government to engage the firm of D. C. & Wm. B. Jackson to act as consulting engineers and experts. The magnitude of the transfer, and the anticipated difficulty of arranging on an equitable basis the adjustment of complex questions of valuation, and planning for future development, make it likely that this will be the most important event, both from the financial and engineering standpoints, in the history of the telephone business.

The American engineers were undoubtedly engaged on account of their experience in handling valuation and rate questions in Chicago and in Massachusetts.

Mr. D. C. Jackson recently sailed for England to consult with Major O'Meara, chief engineer of the British Post Office Telegraph and Telephone System, relative to the character and scope of the work to be undertaken.

Missouri Bell Passes Last Dividend of 1911

Subsidiary of A. T. & T., Operating in St. Louis and Vicinity, Fails to Declare Quarterly Dividend for Last Three Months of Year Just Closed, Paying But 6 per cent. Instead of Usual 8 Per cent.—An Interesting Forecast.

The Bell Telephone Co. of Missouri, operating in St. Louis and adjacent territory, has passed its last 2 per cent. quarterly dividend for the year 1910, having paid during the year but 6 per cent on its outstanding capital stock, instead of the former 8 per cent.

The reason advanced for this action by C. S. Gleed, president of the company, was given out shortly after the directors' meeting, at which it was voted to not pay the final dividend of the year. Mr. Gleed's statement was as follows:

> Besides the heavy increase in taxes and cost of labor, the large expenditures being made by the company for rebuilding and expanding the company's plant clearly make it advisable to distribute no more money on the stock for 1910. Our net gain in telephones during 1910 was at least 8,000, and this involves very large expenditures for the new plant. I do not know what the directors will determine as to dividends in 1911, but I feel sure they will adopt the most liberal plan possible, consistent with rapid expansion and thorough revision of property and methods for the purpose of giving perfect service.

This explanation, while possibly satisfactory to the parent company, which owns $5,831,800 of the outstanding $8,788,000 capital stock of the company, is far from being so to the minority stockholders, most of whom are St. Louis people. In fact, it is stated on excellent authority, that the directors met with no thought of taking any action regarding the dividend other than the usual one of declaring the regular quarterly disbursement. While the meeting was in session, however, imperative directions were received from Boston to pass the dividend, which course, it is stated, was followed after bitter protest on the part of those representing the minority interest.

That the instructions from Boston were not unwarranted by conditions, however, is clearly indicated by an examination of the revenue account of the company for the past few years, together with its balance sheet. In this connection, too, should be considered the drastic cut in rates which the Missouri Bell inaugurated in 1909. Commenting on the result of that sweeping rate reduction at the time, a keen financial analyst wrote:

"What is going to happen to the Missouri Bell in consequence of this makes interesting speculation. As shown by that company's annual report, it failed last year (1908), even without a cut in rates, to earn its dividend, to say nothing of provision for depreciation. Its figures on operation show that it has been going steadily down hill, and now that it is to make a big slash in its income, we may expect to see the company join immediately the ranks of the non-dividend payers among the Bell subsidiaries."

As a matter of fact, the Missouri Bell did not join those ranks "immediately." It held off nearly two years by dint of close handling of its expenses, which permitted it to pay its usual dividend and close the year 1909 with a surplus of $7,530, as against a nominal surplus in 1908 of $408. That the past year has not materially bettered its situation is evidenced by the passing of the dividend, and it is confidently asserted by financial observers in St. Louis that the chances are slender for an early resumption.

The official revenue accounts for 1907, 1908 and 1909, are shown at the foot of this page. The balance sheets for 1908 and 1909 are as follows:

BALANCE SHEET
Year Ended December 31.
ASSETS.

	1909	1908
Construction and property	$7,998,138	$7,745,316
Construction for year	281,256	253,785
Supply department	138,985	200,673
Real estate	818,450	609,007
Stocks and bonds	2,051	2,051
Bills and accounts receivable	217,250	520,927
Cash	199,727	201,227
	$9,655.857	$9,532,986

LIABILITIES.

	1909	1908
Capital stock	$8,788,000	$8,779,800
Accounts payable	414,075	272,423
Reserves	46,747	61,258
Surplus	407,035	419,505
	$9,655,857	$9,532,986

The latest available authority shows the officers of the Missouri Bell to be: President, C. S. Gleed; vice-president, Edwards Whitaker; secretary and treasurer, Fritz Nisbet. The directors include Messrs. Gleed, and Whitaker, James Campbell, William Duncan, J. A. Holmes, P. C. Maffit, J. F. Shepley, D. S. H. Smith, C. P. Walbridge, C. E. Yost and Theodore N. Vail.

Southern Bell Makes First Public Statement of Earnings in Connection with Bond Issue.

In connection with its recent offer and sale of $10,000,000 bonds, the Southern Bell Telephone Co. has made public for the first time in many years a statement of its financial condition. The stock of the Southern Bell is held entirely, with the exception of a few shares, by the parent Bell company, the A. T. & T. Under those circumstances the revenue account of the Southern Bell has hitherto been withheld from the public. The bond offering, however, made it necessary for such a statement to be made. It is here given as officially issued by the company.

It is stated that operating expenses during the present year have been charged with $1,590,000 for maintenance and in the year previous the amount so utilized was $1,820,000, in each instance being over 30 per cent of the gross.

The balance of surplus is not sufficient to offset the amount required to meet the 6 per cent dividend that, it is claimed, has

REVENUE ACCOUNT BELL TELEPHONE COMPANY OF MISSOURI, 1907, 1908, 1909.

	Gross	Oper. & Taxes	Net	Divs.	Surp.
1907	$1,937,482	$1,392,501	$544,981	$540,800	$4,181
1908	2,009,356	1,346,960	662,396	661,988	408
1909	1,984,156	1,273,586	710,570	703,040	7,530

been paid annually since 1906. It is expected that the growth in net in years to come will be sufficient to offset any delinquency that may occur this or next year.

The earnings and expenses for the first ten months of the calendar year just closed are actual; those for the last two months are estimated.

REVENUE ACCOUNT.

Gross earnings	$6,000,000
Operating expenses and taxes	4,300,000
Net earnings	$1,700,000
Amount required for $10,000,000 1st. Mtg. bnds	500,000
Surplus for dividends	$1,200,000

The gross earnings during the past five years are given as follows:

Year.	Amount.	Year.	Amount.
1910*	$6,000,000	1907	$4,390,600
1909	5,230,666	1906	3,703,427
1908	4,612,456	Average	4,787,429

*Estimated.

A record of the number of stations owned and operated by the company, together with those with which it connects, covering the past six years, is given as below:

	Stations owned.	Connected stations.	Total.
1910*	159,029.	134,959	203,988
1909	141,484	119,918	261,402
1908	124,767	86,576	211,343
1907	118,411	37,336	155,747
1906	107,756	27,106	134,862
1905	87,150	19,510	106,660

*Estimated.

Ohio Independent Association Protests Against Provisions of Amendment to Interstate Commerce Law.

The Ohio Independent Telephone Association has filed a statement with the Interstate Commerce Commission protesting against being subjected to the provisions of the amendment to the interstate commerce law, which makes telephone and telegraph companies amenable to the statute.

The statement sets forth the contention that the association is composed of 550 local exchanges and has nothing to do with fixing rates for toll or long-distance connections for service outside the state.

The claim is made that, for this reason, the association should not be required to file its schedules with the commission and maintain an agency in Washington, and it is stated that if this is exacted the members of the association will be forced to increase their local rates to subscribers.

Independent Companies Pay Regular Dividends.

The Hastings (Neb.) Independent Telephone Co. paid, on January 1, its regular semi-annual dividend of 3½ per cent.

The Empire (Independent) Telephone Co., of Bradford, Ill., has paid its regular semi-annual dividend of 4 per cent.

The Johnstown (Independent) Telephone Co., of Johnstown, Pa., declared its regular 3 per cent quarterly dividend, with an extra dividend of 1 per cent, payable December 23.

The directors of the Orange Telephone Co., of Gordonville, Va., at a recent meeting, declared a dividend of 6 per cent. Mr. C. C. Taliaferro was re-elected president; L. S. Ricketts, vice-president; R. L. Biscoe, general manager, and W. F. Coates, secretary and treasurer.

Opinions from Field on Physical Connection

By A. A. Godard, Topeka, Kans.

I am in favor of a law compelling physical connection between the exchanges of telephone companies occupying the same or contiguous territory, and between toll lines meeting or crossing each other, and also between toll lines and all exchanges in the cities or towns where such toll lines terminate or have stations.

My principal reason for favoring this proposition is that such connection will afford to the public additional service and facilities over that which it now receives, and will afford the telephone companies additional business over that which they are now handling.

I am not in favor of such compulsory physical connection unless it is brought about by means of a law or laws which will protect the rights of the smaller telephone companies against possible wrongs of the larger companies and which will permit all telephone companies to make a reasonable and fair earning for the business so carried.

The question involves difficulites, but I do not believe them unsurmountable. I believe the connection can be compelled upon the theory that public policy demands it and the further theory that a public service corporation has no right to refuse business of the kind which it is furnishing if properly compensated therefor.

A board of control or public utilities commission should supervise the making and operation of such connection.

Another hindrance arises from our dual system of government. In order to secure the best possible condition, the passage of an adequate Federal statute upon the subject is needed with uniform state laws of like character.

By W. P. Hemphill, Topeka, Kans.

I am in favor of compulsory connection, and the interchange of both local and long distance business under the supervision of the Interstate Commerce Commission and state Railway Boards. I believe that such legislation as will bring about this condition will benefit the telephone companies as well as the public. It will bring about real "universal service" and cannot work to the serious disadvantage of either Bell or Independents, no matter what their relative state of development may be in a community. While giving the public the advantage of much greater possibilities in the way of connections, it at the same time opens up new avenues of revenue to the telephone companies that should compensate them well for the expense they are put to in handling the interchange business.

By Frederick C. Woods, Galesburg, Ill.

There are two main points from which physical connection is viewed, one of the people, the other of the corporation. These might be divided into minor points by considering the situation as a long distance connection, or a local connection, or as both.

Looked at from the telephone user's point of view, physical connection between Bell and Independent long distance lines is desirable if the end to be gained is a large and reasonable servive. While 90 per cent of the messages do not go further than about 30 miles from the point of origin, yet the other 10 per cent are important and must be taken care of, if a corporation serves its patrons with the highest efficiency.

We must consider the fact that, while 90 per cent of the messages are short hauls, they only represent about 75 per

cent of the receipts, and may be less. If there is a well defined value of the long haul to telephone companies it is equally true that the value of long distance service is large to the consumer. Local competition would not be affected, provided telephone corporations did not interchange messages within a predetermined radius of the point of origin of such messages.

The American Telephone & Telegraph Co. is organized primarily to do a long distance business, and incidently to hold a majority of the stock of certain telephone companies known as licensees.

Is the A. T. & T. Co. a common carrier? If it is can the A. T. & T., because it holds stock in a certain corporation, refuse to do for other companies the duties for which it is organized?

It is not legal in Illinois for one corporation to hold the stock of another corporation.

If it is true that the A. T. & T. is specifically organized to do a long distance business, and is a common carrier, I believe a constitutional law may be passed by our legislature compelling it to perform a like duty for all telephone companies. If this is true, the A. T. & T. could not plead confiscation of property should its long distance subscribers leave it for other companies, because it chanced to hold stock in other corporations

Leaving the A. T. & T. for a time, it seems that, by agreement and possibly by law, telephone companies might connect their long distance lines, provided such connections were made beyond a competitive radius from the point of origin of messages. For instance, if 90 per cent of the messages are delivered within a radius of 30 miles from the point of origin, the balance, 10 per cent, could be delivered over either company's lines.

It is evident that only a small percentage of the telephone public would be benefited by such an arrangement, yet the economic value to a community would be considerable, as in some localities duplication would nearly cease. It might be possible that an exodus would take place from the smaller to the larger company, but this could only be determined by local conditions. It is a mighty poor corporation that does not have some friends, and a poor manager that has no following, and an ignorant community that cannot see the benefit of competition.

Some one has said that standardization must precede physical connection. Why? Is the Independent equipment as bad as that? That is impossible. TELEPHONY, in its issue of December 31, sounded the keynote when it said "standard performance" should be the ideal standard, and Mr. Gary clinches the argument when he says "90 per cent attention and 10 per cent apparatus means good service."

The rural lines, owned by farmers, need not receive any consideration, as they are non-toll users. They do not call Chicago or New York for market news, we are told by a writer, which is true. If we built toll lines for the rural communities to support we would not get enough to pay for tree trimming. However, as rural service is important to cities of average size, it must ever be the commercial telephone company's duty to keep agitating and endeavor to educate the former to the point of letting commercial companies do the telephone business.

As to the local exchange of service, physical connection is not necessary or desirable, and I do not believe any law that might be passed would stand the constitutional test.

Before any laws are passed looking toward intercommunication, there must be first laws passed creating public service commissions whose sole duties shall be to oversee the operations of telephone and telegraph companies, and such commissions must have power to regulate rates and command extensions of service. They must also have the power to say that rates shall not be lowered without their sanction.

Physical connection with the A. T. & T. lines for long distance hauls would be a benefit to the public which uses Independent telephones, as well as to the corporations whose duty it is to "serve well." It can be accomplished legally and, for economical reasons, should be accomplished.

By L. W. Stanton.

One of two things is inevitable, either consolidation or physical interconnection of competing telephone companies. The friends of competition are becoming its enemies. They say: "We can't afford two telephones and we want to be able to reach every telephone, both local and long distance."

The public is demanding in no uncertain terms that it be allowed to talk to every telephone, let the ownership of the exchange with which it is connected be what it may. When the public demands anything it gets it sooner or later. This means either consolidation or physical interconnection of competing telephone companies. The consolidation of all telephone companies with so many divergent interests, and involving several hundred millions of capital would create a monopoly, which is next to impossible; therefore, the only solution is physical interconnection. This will give true and lasting competition, the kind the public will appreciate.

It is sometimes argued that the Bell telephone trust will give inferior service to the Independent companies. This the trust would not dare do under a well worded statute, which would call for prosecution of officers, managers, operators, or other employes, who in any way interfered with the prompt and efficient interchange of service. The commission having this in charge would make tests in any city where it found a complaint against favoritism, and if the operators of the Bell trust knew they were liable to prosecution, if they discriminated, they would doubtless use their best efforts to give the Independents the promptest possible service. There should be national and state laws, which should include every commercial telephone company, compelling intercommunication between all telephone companies, with a moderate switching fee which would give fair compensation to the companies and would not be burdensome to the patrons. Competent telephone men and electrical engineers know there is no difficulty in accomplishing such an interchange of service.

The Independent telephone companies under such legislation would retain all their present advantages and, in addition, would have any benefits to be derived from the Bell company's so-called universal system.

The local Independent telephone companies would have many advantages that the Bell can never hope to have. For illustration, there will be local ownership and local management. Local citizens who have their money invested can get favors and accomplish results that the army of Bell employes can never accomplish. What business man would think he could trust some employe in Boston to tell another employe a thousand miles away what to do, and expect to compete with shrewd local business men, with their own money at stake, who are on the ground, and among their own neighbors and friends?

Further, the local company does not have to pay a royalty to a parent company. Today it is acknowledged by leading engineers that more efficient equipment can be secured from Independent manufactures than from the Bell and, owing to the splendid equipment and new methods of construction, plants can be built and operated much more cheaply than ever before.

The Independent telephone movement has won a great victory over America's greatest trust. With physical connectoin established, a grade of competition will have been brought about that will be genuinely satisfactory to the people, who will continue to help fight our battles. As it stands today, the people are opposed to the idea of 4,000,000 telephones which are unable to connect with 4,000,000 more, as being fundamentally and economically wrong.

H. E. Huntington Associates Himself With Bond House of J. H. Adams & Co., Los Angeles.

One of the most important financial transactions accomplished in Los Angeles during the year just passed, and which has just become public through the filing of the articles of incorporation, is the association of Henry E. Huntington with the well-known bond house of James H. Adams & Co. under the firm name of J. H. Adams & Co. Mr. Huntington's investment in the reorganized concern aggregates $700,000 and he becomes a member of the directorate. The capital stock, which was formerly $150,000, has now been increased to $3,500,000.

The bond house of James H. Adams & Co. has long played an active part in the financing of Independent telephone properties, having acted, among other transactions, as fiscal agent for the Los Angeles Home company and disposing of most of its bonds. Mr. Huntington, as is well known, is heavily interested in Independent properties on the coast, both in Los Angeles and San Francisco, as well as at other points. He has also large Independent holdings in Texas. His accession to the firm, in view of his great personal wealth and his prestige as one of the most successful financiers on the Pacific Coast, will go far to broaden the field of the reorganized concern and enable it to operate on a much more extensive scale than heretofore.

With reference to this phase of the new combination E. J. Marshall, one of the directors, said: "The house of Adams & Co. has been largely interested in the Independent telephone movement on the Pacific Coast. It is well known that Mr. Huntington is largely interested in some telephone properties in Texas and the Southwest. The union of these two strong forces marks the beginning of what probably will be a new epoch in Independent telephony."

It may also be remarked as significant that William E. Dunn, Mr. Huntington's attorney in California, who will represent him on the board of directors until he actively assumes that role himself, was for several years attorney for the Pacific Bell.

"Our operations on account of the new incorporation will now become more extensive," said Mr. Adams. "The general character of the business will not be changed, however. In brief, I may state that we wish to take care of the interests in the Southwest and our expansion is due to the increase in the number and weight of municipal and corporate enterprises."

The board of directors named in the articles is as follows: James H. Adams, president; J. S. Torrance and E. J. Marshall, vice-presidents; and Henry E. Huntington, each of whom own one-fifth of the stock; Howard E. Huntington, Frank M. Brown, R. W. Wheeler, James R. Martin and Morgan O. Adams, who complete the company. Each of these own an equal share in the one-fifth of stock remaining.

Relinquishes Bell Traffic Agreement for Independent.

The Star Telephone Co., which operates Upper Alton, Ill., has relinquished its interchange contract with the Bell company and will, within a few days, sign a similar agreement with the Kinloch (Independent) Telephone Co. An offer from the Bell interests to buy the plant of the Star company was declined. It is stated by G. C. Treadway, manager of the Star company, that from $60,000 to $70,000 will shortly be spent by that concern in practically rebuilding the Upper Alton property.

Iowa License Fee Suit vs. Western Union Dismissed.

The million dollar license fee suit brought by the state of Iowa against the Western Union Telegraph Co. two years ago has been dismissed by Judge W. H. McHenry, in the District Court. The dismissal follows a recent ruling by the Supreme Court of the United States in a similar case instituted by the state of Kansas.

Wichita People Object to Raise in Bell Rates—General Dissatisfaction with Service Reported.

Consolidated service under Bell management has not only been considered unsatisfactory by the people of Wichita, Kan., but has produced such a condition of public sentiment that the Bell company has found it extremely difficult to obtain the result of its monopoly which appeals to the New York financiers in control of the telephone trust, namely, high rates.

The latest phase of the situation at Wichita, where, it will be remembered, the city recently paid $750 for a report of the Bell company's property and earnings, is told in the following Associated Press dispatch to the Topeka *Capital;*

"Wichita people are on the verge of revolt at present over the report that a sweeping raise in telephone rates will be made effective here beginning not later than the first of next month. This announcement has been made, unofficially, by officers of the Bell telephone company, here.

"Some time last summer the Bell Telephone Co. here bought out the Independent system and consolidated the two systems. Ever since that time there has been complaint of unsatisfactory service, and the telephone people have replied by stating that they are losing money on the maintenance of the system and cannot afford to put on better service. They asked,or rather stated they would announce, a raise in rates for all kinds of service.

"At that time it was decided by the mayor and city commissioners that they would do well to make an investigation before allowing any raise. The company now plans to attempt to put the new rates into effect before the mayor and commissioners have reported their findings. The service lately has been deplorably poor and the mayor and commissioners are said to favor higher efficiency in the service given before anything is done about raising rates."

Good Showing for Topeka Independent Company.

The Topeka Independent Telephone Co. has issued its statement for the six months ended October 31, 1910, as compared with that for the corresponding period last year. The figures are as follows:

REVENUE ACCOUNT.

Six Months Ended October 31.

	1910	1909	Increase
Gross earnings	*$90,883.55	$79,777.09	$11,106.46
Expenses	*58,306.33	50,555.75	7,750.58
Net earnings	$32,577.22	$29,221.34	$3,355.88
Interest on bonds	13,824.90	13,825.00	†.10
Balance for dividends or betterments	$18,752.32	$15,396.34	$3,355.98
Number of telephones	7,056	6,330	726

*Includes tolls. †Decrease.

Renewal reserve		$ 64,007.88
Bonds outstanding	$ 643,000.00	
Less owned by company	110,000.00	533,000.00
Capital stock authorized	$1,000,000.00	
Capital stock issued		400,000.00

Public Service Commission for West Virginia.

For the purpose of framing a bill to be presented to the state legislature creating a public service commission to have control of all public utilities in the state, a committee appointed by the state Board of Trade has conferred with Governor Glasscock. The plan outlined for the bill provides for a non-partisan commission of three persons, with the right to appeal from the commission's decisions to the courts.

Chicago Co.'s Mishandling of Depreciation

Conclusion from Last Week's Telephony of the Discussion of this Subject as Presented in the Report by the City's Expert, Mr. W. J. Hagenah—Detailed Account of the Transfer of Depreciation Reserve to Surplus, and its Subsequent Capitalization.

The analysis of these transfers and the charges through which they were originally set up can best be made from the records of the company as a whole rather than those for the Chicago proportion only, since the company has had no occasion to apportion between the city and outside of the city such general corporate accounts as the reserves, the surplus account and the capital liability accounts. In the following analysis of these transfers and the determination of their effect on the value of the plant the accounts of the company as a whole were used.

In connection with this method of accounting for plant depreciation the company set up an account entitled "Maintenance Reserve" and a further account entitled "Reserve for Maintenance." These accounts were set up by a charge to the former and a credit to the latter, no charge being made at the time either to the operating expense accounts or to Profit and Loss. The debits and credits of the accounts being identical, they did not affect the Profit and Loss account until the final adjustment was made. This was accomplished when the debit balance of the one account was charged to maintenance and the credit balance of the other was transferred to the credit of the Reserve for Deferred Maintenance.

The Reserve for Deferred Maintenance was set up and continued through charges to current maintenance, maintenance reconstruction and the Reserve for Maintenance. It was reduced by credits to Construction to Surplus and to sundry items. The total credits to this reserve since 1895 have been $7,092,857.40 and the debits $5,254,017.35, leaving a credit balance in 1909 of $1,838,840.05. The following table shows a summarized statement of the debits and credits to this reserve from 1895 to 1909, inclusive:

Items.	Debit.	Credit.
Charged Reserve for Maintenance	.....	$1,965,516.66
Charged Maintenance and Reconstruction	.....	5,110,078.39
Sundry charges	.....	17,262.35
Credited surplus	$ 1,925,000.00	.....
Credited Construction for Depreciation	3,082,076.09	.....
Sundry credits	246,941.26	.....
Balance	1,838,840.05	.....
	$ 7,092,857.40	$7,092,857.40

The full effect of these transactions on the accounts of the company is made more apparent by restating the debits and credits in the following manner:

	Debits.	Credits.	Balance.
Charged Reserve for Maintenance	.....	$ 1,965,516.66	
Transferred to Credit of Surplus	$ 1,925,000.00	.....	
Balance	40,516.66		$ 40,516.66
	$ 1,965,516.66	$ 1,965,516.66	
Charged Maintenance and Reconstruction	.....	$ 5,110,078.39	
Credited Construction for Depreciation	$ 3,082,076.09	.....	
Sundry Items	229,678.91	.....	
Balance	$ 1,798,323.39	.....	1,798,323.39
Total Credit Balance	$ 5,110,078.39	$ 5,110,078.39	$ 1,838,840.05

From the above it will be seen that the credits to the Reserve for Deferred Maintenance and the corresponding charges to the Reserve for Maintenance are almost equaled by the transfer to the corporate Surplus, exceeding such transfers by only $40,516.66. The greater part of the credits to this reserve were built up through charges to maintenance, which accumulations served as a part of the credits to the Construction Account. The remainder of such credits, built up out of charges to the Current Maintenance Account, if depreciation has been properly accounted for, should represent the difference between the cost of the plant new and the estimated value based upon present condition. This balance, according to the table, is $1,838,840.05. Since, however, all the credits to plant on account of depreciations have been reversed for the benefit of Surplus, it can not be claimed that the above balance represents the depreciation in plant condition.

The final disposition of the above transactions in the corporation balance sheet is shown in the following table containing the assets and liabilities of the entire company for the years 1906 to 1909, inclusive, and showing the increase and decrease in the items between those years:

Comparing 1906 with 1907 it will be seen that the assets have increased $8,622,001.37. Of this amount $7,617,686.13 represents the increase in plant alone. This increase is especially large, because it includes the reversed depreciation credits to the amount of $3,767,233.35, the balance of $3,850,452.78 being actual additions to construction. As against these increases in assets, the principal liability items increased were $3,564,124.28 increase in capital stock and $4,036,604.02 increase in the Surplus, the latter account having been credited with the depreciation reversals charged to Construction.

The adjustment of the balance sheet because of these transactions in the plant account was completed in 1908, when the capital stock was increased $9,435,875.72, there being at the same time large decreases in the amount of Bills and Accounts Payable and in the Surplus. The application of the increased stock liability was to cover additions to plant during the year amounting to $1,791,755.18, the funding of a large amount of indebtedness incurred for previous additions to plant and the reduction of the Surplus account by a distribution of $4,500,000 in stock.

While the table below shows that the plant, as at present carried on the general books, shows no provision for depreciation except the credit balances of the Reserve for and the total of the current and reconstruction maintenance expense and its percentage on the investment. This last column should show the total amount spent on "up keep" and

Chicago Telephone Company. Condensed Balance Sheet. 1906-1909.

Assets	1906.	1907.	Increase or **decrease** over previous year.	1908.	Increase or **decrease** over previous year.	1909.	Increase or **decrease** over previous year
Invested in plant	$ 16,706,425.90	$ 24,324,112.03	$ 7,617,686.13	$ 26,115,867.21	$ 1,791,755.18	$ 27,840,341.36	$ 1,724,474.15
Invested in real estate	1,764,281.40	2,320,034.53	555,753.13	2,551,487.92	231,453.39	2,749,985.66	198,497.74
Other investments	93,876.74	92,819.93	**1,056.81**	82,933.27	**9,886.66**	72,588.00	**10,345.27**
Material on hand	388,132.75	397,738.41	9,605.66	424,813.56	27,075.15	501,424.46	76,610.90
Furniture, fixtures, tools and teams	214,015.55	369,059.49	155,043.94	436.860.79	67,801.30	430,852.13	**6,008.66**
Bills and Accts. receivable	605,618.92	751,836.15	146,217,23	613,475.01	**138,361.14**	760,731.02	147,256.01
Cash	19,084.94	157,837.03	138,752.09	455,364.17	297,527.14	3,758,692.10	3,303,327.93
Total assets	$19,791,436.20	$28,413,437.57	$8,622,001.37	$30,680,801.93	$2,267,364.36	$ 36,114,614.73	$ 5,433,812.80
Liabilities.							
Capital stock	$14,000,000.00	$17,564,124.28*	$3,564,124.28	$27,000,000.00	$9,435,875.72	$ 27,000,000.00	.....
Bonded debt	.....	.....	.....	.....	.....	5,000,000.00	5,000,000.00
Reserve for deferred maintenance	1,651,535.76	1,836,714.26	185,178.50	1,838,840.05	2,125.79	1,838,840.05	.....
Reserve for taxes	232,388.65	228,726.64	**3,662.01**	.....	**228,726.64**	.....	.....
Reserve for Ins. fund	175,000.00	200,000.00	25,000.00	.....	**200,000.00**	.....	.....
Reserve for depreciation on buildings	40,530.48	62,899.20	22,368.72	62,899.20	.....	62,899.20	.....
Bills and Accts. payable	2,475,291.21	3,331,241.99	855,950.78	377,246.46	**2,953,995.53**	411,005.26	33,758.80
Miscellaneous reserve	143,351.43	79,788.51	**63,562.92**	717,138.19	637,349.68	1,056,484.63	339,346.44
Surplus	**1,073,338.67**	5,109,942.69	4,036,604.02	684,678.03	**4,425,264.66**	745,385.59	60,707.56
Total liabilities	$ 19,791,436.20	$ 28,413,437.57	$ 8,622,001.37	$30,680,801.93	$2,267,364.36	$ 36,114,614.73	$ 5,433,812.80

*Includes $655,624.28 of Stock Subscribed, but not issued.

Deferred Maintenance and the Reserve for Depreciation of Buildings, the conclusion that the book values are in excess of the actual value for rate-making purposes is improper without an examination of the operating expenses, to which it is possible to have charged replacements directly without the medium of reserve.

The table below shows the distribution of the plant credits above referred to.

This table shows that of the depreciation credits reserved $648,982.12 was charged directly to maintenance and $3,079,576.09 was charged to the Reserve for Deferred Maintenance. This reserve in turn had credits through charges to current maintenance and reconstruction maintenance to the amount of $5,110,078.39. In order to determine, therefore, the actual amount spent on current maintenance and replacements it is necessary to deduct from the book figures those charges which were not applied to maintenance or replacements. For this purpose a table based on the book figures has been prepared showing each year for the company as a whole, the total of the Construction Account and the Buildings proportion of the Real Estate replacements, regardless of the fact whether the charges when made were technically correct as Current Maintenance or Replacements for Depreciation. These columns are the book figures, and in order to show the actual maintenance expense, after making adjustment on account of the charges to maintenance which were finally transferred to surplus, the last two columns have been added, showing the total adjusted maintenance expenses which were actually put into the plant and the per cent of this total plant investment. This table is shown on the following page.

The column in the following table showing the total current and reconstruction maintenance charges as adjusted was obtained through the deduction of the following detailed distributed charges which did not actually go into maintenance.

Owing to the change in accounting methods in 1904, when the Reconstruction Maintenance charges were first opened, little of value can be obtained from the examination of either the Current Maintenance or the Reconstruction Maintenance charges only, but recourse must be had

Year	Credited Construction Acct. of Depreciation.	Accounts Charged— Reserve for Deferred Mtce.	Maintenance.	Surplus.
1893	$ 50,000.00	.....	$ 50,000.00	.....
1894	26,774.74	.....	7,210.00	$19,564.74
1895	19,110.60	.....	.....	19,110.60
1896	216,922.66	.....	216,922.66	.....
1897	342,409.56	.....	342,409.56	.....
1900	444,903.64	$ 412,463.74	32,439.90	.....
1901	467,112.35	467,112.36	.....	.....
1902	300,000.00	300,000.00	.....	.....
1903	300,000.00	300,000.00	.....	.....
1904	500,000.00	500,000.00	.....	.....
1905	400,000.00	400,000.00	.....	.....
1906	700,000.00	700,000.00	.....	.....
	$3,767,233.55	$ 3,079,576.09	$648,982.12	$38,675.34

Account from 1895 to 1909, the current maintenance charge and its percentage on the investment, the reconstruction maintenance expense and its percentage on the investment to the sum of these two columns. Expressed in terms of percentage on the property maintained this annual allowance ranges from 9.503 per cent in 1909 to 15.788 per cent

in 1905. When, however, the deductions below are made and the percentage counted on this basis, the annual charges range from 6.5 per cent in 1904 to 10 per cent in 1907, and show an average of 8.58 per cent per year for the period.

Year	Construction Account, including Buildings Book Cost	Current Maintenance Book Figures	Percent of Construction Account	Reconstruction Maintenance Book Figures	Percent of Construction Account	Total Maintenance Current and Reconstruction Book Figures	Percent of Construction Account	Total Maintenance Current and Reconstruction Adjusted Charges	Percent of Construction Account
1909	$29,011,964.25	$1,842,013.84	6.349	$ 915.193.81	3.155	$2,757,207.65	9.503	$2,757,207.65	9.503
1908	27,347,652.74	1,637,943.63	5.989	965,292.04	3.530	2,603,235.67	9.519	2,603,235.67	9.519
1907	26,067,552.58	2,123,856.15	8.148	743,894.63	2.854	2,867,750.78	11.001	2,607,750.78	10.004
1906	21,848,408.05	1,617,736.58	7.404	1,407,263.42	6.441	3,025,000.00	13.845	1,752,769.69	8.022
1905	18,526,971.12	1,321,486.78	7.133	1,603,513.22	8.655	2,925,000.00	15.788	1,576,336.84	8.508
1904	16,876,767.07	1,129,147.67	6.691	1,361,514.69	8.067	2,490,662.36	14.758	1,098,185.54	6.507
1903	15,730,786.08	1,954,482.43	12.425	.....	.....	1,954,482.43	12.425	1,216,614.26	7.734
1902	13,166,040.97	1,587,750.85	12.059	.....	.....	1,587,750.85	12.059	998,748.45	7.586
1901	11,151,011.10	1,292,410.87	11.590	.....	.....	1,292,410.87	11.590	866,038.71	7.766
1900	8,899,332.96	1,008,068.00	11.327	.....	.....	1,008,068.00	11.327	678,365.87	7.623
1899	6,991,812.43	988,390.87	14.136	.....	.....	988,390.87	14.136	559,238.95	7.998
1898	5,600,960.76	849,018.79	15.158	.....	.....	849,018.79	15.158	464,236.57	8.289
1897	4,979,054.61	677,012.47	13,597	.....	.....	677,012.47	13.597	435,492.31	8.746
1896	4,698,824.57	636,608.86	13.548	.....	.....	636,608.86	13.548	419,686.20	8.932
1895	4,345,431.86	539,762.83	12.421	.....	.....	539,762.83	12.421	437,170.75	10.060

Ratio of Maintenance Expenditures to Investment.

The deductions made above include the charges which created the present credit balances in the Reserve for Deferred Maintenance and the Reserve for Depreciation of Buildings, and which, therefore, are included in the value of the plant for rate-making purposes. This amount is equal to 6.55 per cent of the plant value, and when distributed over the period during which it was accumulated and added to the actual maintenance expenditures the total average is increased from 8.58 per cent to 9.46 per cent per year.

The adjusted Reconstruction charges alone, and the percentage which each charge represents to the plant investment, including buildings, for the years during the period covered is as follows:

		Per cent
1909	$915,193.81	3.155
1908	965,292.04	3.530
1907	493,894.63	1.895
1906	161,369.51	.739
1905	415,947.12	2.245
1904	94,240.18	.558

This analysis, in view of the fact that the physical condition of the plant is good, is significant of several facts. It shows that for fifteen years an average of 8.58 per cent has sufficed for both current maintenance and depreciation. It shows that if it requires 6 per cent to provide for current maintenance, 2.58 per cent is sufficient for depreciation, and if, on the other hand, 7 per cent is regarded as a proper annual allowance for depreciation, the current maintenance expense is less than 2 per cent per year. These amounts, as here shown for reconstruction, still contain charges which did not go into plant, either for current maintenance or replacements. The cost of removing subscribers' stations, which during 1909 amounted to $268,243, was treated as reconstruction. This is an "operating" expense rather than a "maintenance" charge. The exact expenditure for this purpose each year cannot be accurately ascertained for the purpose of making the deduction. As a result, the amounts in the above table are much larger than the actual benefits to plant.

Expert opinion and the cost record of many telephone plants which are open to inspection show that current maintenance consumes each year an amount equal to 6 per cent of the plant investment. In fact, in many instances this percentage rises to an average of 7 per cent or more per year and the facts give rise to no charge of extravagance or mismanagement. Certain it is, also, that a plant of the character of the Chicago Telephone Company cannot be insured against the depreciation of physical assets by an annual provision equal to only 3 per cent of the investment. Between these two propositions there is a third, which is borne out by the data here presented. It shows that the book figure as to plant value, including real estate, personal property and the credit balances of the Reserve for Deferred Maintenance and the Reserve for Depreciation of Buildings is still in excess of the actual physical value. It shows that the depreciation credits above referred to represent the estimate of the management as to the yearly depreciation in plant, and that when it was decided to adjust the books so as to show the actual investment which had been made in plant, these credits should have been transferred to the Reserve for Deferred Maintenance, instead of being placed to the credit of Surplus, which canceled the efforts of the management to strengthen the plant accounts.

The above analysis represents one method of arriving at plant value. Because of the conditions referred to the greatest reliance cannot be placed on the total arrived at in this manner, which appears to be in excess of the actual present value. In view of the absence of data bearing on

Account Charged	Total	Credited Reserve for Deferred Maintenance	Credited Construction	Credited Maintenance Reserve	Miscellaneous
Maintenance:					
Salaries and wages	$1,917,368.21	$1,295,118.09	$227,657.76	$ 394,592,36	.....
Material	1,332,530.46	901,106.33	118,987.33	215,841.64	$ 96,595.24
Maintenance reconstruction:					
Salaries and wages	2,151,300.94	1,421,666.67	.....	729,634.27	.....
Material	1,799,433.50	1,253,333.33	.....	546,100.17	.....
Miscellaneous accounts	530,651.10	.....	.....	.....	530,651.10
Total	$7,731,284.21	$4,871,224.34	$346,645.09	$1,886,168.44	$627,246.34

this subject, which is absolutely reliable, other sources of information must be secured and other computations made, based upon the best material available. This can be done by placing a value upon the different units of equipment embraced in the several classes of property owned by methods closely resembling an appraisal.

Following this discussion of depreciation the report deals with the appraised value and presents the company's valuation and the city's experts' valuation based on unit costs of $20,448,304 total depreciable property, with $1,667,460 non-depreciable property added, making a total "valuation new," according to the experts, of $22,115,764, as shown completely in the table on page 776 of the December 31 issue of TELEPHONY.

Taking this as a basis, Mr. Hagenah works out a value which he assumes to be the proper one for date-making purposes on the basis of the present condition of the plant. Deducting the accrued depreciation from the value of depreciable property, he finds that the "per cent of conditions" for the plant today, including buildings, is 77.5 per cent. Applying this ratio to the $20,444,304 depreciable plant he arrives at a present value of depreciable property of $15,847,456. To this he adds the available depreciation reserve items, and the present value of non-depreciable property. The report says:

"The present value of the plant may, therefore, be summarized as follows:

Present value of depreciable plant	$15,847,456
Land	769,161
Tools and teams	198,299
Working capital	700,000
Credit balance reserve for deferred maintenance	1,434,295
Credit balance reserve for depreciation of buildings (including appreciation allowed)	103,978
Present value	$19,053,169

"The above amount is the investment which it is believed should serve as the basis of the present adjustment in rates. It represents only that part of the plant devoted to exchange service, there having been deducted by the apportionment of each class of property all investment which belongs directly to either the suburban service or the toll service, and a further deduction having been made to cover as far as possible the investment in joint facilities. It is this investment which has produced the exchange service revenue and the operation of which has incurred the expenses shown in the income account."

Valuation the Main Question in Preliminary Discussion Before Committee.

Representatives of the Chicago Telephone Co. and Mr. W. J. Hagenah, the expert who prepared the city's report, appeared before the Committee on Gas, Oil and Electric Light on Thursday, January 5.

Mr. Sunny prepared an elaborate brief outlining the company's position. The principal point in which he took issue from Mr. Hagenah's report was in the claim for book cost as a basis of value for the purpose of regulation.

The telephone company was said to be not alone in having failed to set up what is regarded as a proper amount for depreciation, and several industrial and public service corporations who have failed in that point were cited.

At the same time the company recognizes the need of caring for depreciation, and has contended for rates which would permit net earnings capable of including a proper charge to depreciation.

Contracts with the A. T. & T. Co. and the Western Electric Co. were said by Mr. Sunny to be reasonable and to represent the best judgment of the directors of the company. Of the 11 directors, 8 are Chicago men and 2 represent the A. T. & T. Co.

The possible effect of competition upon the construction of subways and the installation of meters, Mr. Sunny alleged, might make a reduction in the company's available income of $1,170,000.

The view of the company seemed to be that reduction in the company's revenue by effect of competition and building of subways was a rather remote contingency.

The A. T. & T. 4½ per cent charge came up for some discussion, but will be fully discussed at a future meeting.

The sum of $262,800 was admitted as an addition to taxes, reducing the surplus reported by Mr. Hagenah by this amount. At the hearing on Tuesday, January 10, discussion on valuations was continued, and Mr. J. G. Wray, chief engineer of the Chicago Telephone Co. presented a criticism of Mr. Hagenah's report. It was set forth in this discussion that the difference of 5½ per cent between Mr. Hagenah's figures for valuation now and the company's book figures showed the accuracy of the company's bookkeeping; that consideration should be given in estimating conduit cost, an item in which Mr. Hagenah differed from the company, to the higher cost of doing smaller jobs necessarily done at a higher cost; that much paving had been done at the company's expense over conduit constructed; that overhead percentage added to actual construction cost should be higher than allowed by Mr. Hagenah; and attention was called to Mr. Hagenah omitting to make any addition for value as a going concern.

Mr. Wray's remarks concluded with the statement that the "application of the appraisal methods which have been adopted by the leading authorities in the country, would in all probability give a valuation five or six million dollars more than Mr. Hagenah gives as our book figure of plant investment."

There was considerable discussion of details during the morning meeting of the council, leading apparently to no definite conclusion on the points at issue.

Perils of Lineman's Work in Western Mountain Range—Dramatic Rescue of Man Caught in Avalanche.

Caught by an avalanche and carried 200 feet down a mountain side, near Ellenburg, Wash., buried under snow and badly injured, J. C. Hutchinson, a telephone lineman, crawled to the top of a nearby telephone pole, "cut in" with his lineman's pocket telephone, called up Ole Elum, the nearest station, and told of his predicament.

The telephone company appealed for aid, and a freight train crew at Martin was ordered to cut an engine loose and run to the tunnel with a rescue party.

The rescue party found Hutchinson was out of reach, several hundred feet above them on a mountain, with a precipitous bank of snow between them and the freezing man. Hutchinson's clothing, which had been dampened by his exertions, began to freeze in the bitter cold.

A swinging seat, used by linemen in working along suspended cables was brought out and, starting a quarter of a mile away the men slowly worked their way along the telephone cable to the imperiled lineman.

Finally he was reached, placed in the cable seat, and the two linemen worked back down the incline, hand over hand. Hutchinson will live, but may lose an arm.

Omaha Plant to Spend Another $115,000 in Extensions.

Judge Munger has granted leave to Lysle I. Abbott, receiver of the Omaha Independent Telephone Co., to issue additional receiver's certificates in the amount of $115,000. The proceeds will be used to extend the system.

Northern Telephone Co. Issues 1911 Calendar.

An attractive calendar bearing a reproduction of the picture "Harvest Time," by Arthur, is being sent to its subscribers and friends by the Northern Telephone Co., of Enosburg Falls, Vt.

A System of Multiplex Telephony

A Technical Description of the Details of the Invention by Major George Owen Squier of the U. S. Army, Whereby a Single Metallic or Grounded Circuit May Simultaneously Carry Two Telephone Messages Without Interference.

An invention of far-reaching importance from a scientific standpoint which may have a great ultimate commercial bearing on the destiny of the telephone industry, was announced by Major General James M. Allen of the U. S. Signal Corps, simultaneously with the issuance of four patents on multiplex telephony to George Owen Squier. These patents are dedicated to the public use, and the invention may be used without royalty by the Government or any citizen of the United States.

The following description, with illustrative diagrams bearing upon the theory of the system invented by Major Squier are either abstracted directly from the specifications of the patents or based upon statements contained therein.

The object is to transmit without interference, simultaneously, several telephonic or telegraphic messages over a single circuit. For telephonic transmission one transmitting and one receiving medium at each end of the line—substantially of the type ordinarily employed in telephone work, and for each superposed message a high frequency receiving and transmitting circuit, are employed.

The electromagnetic waves employed are of high frequency ranging from 15,000 or 20,000 to 100,000 cycles per second, all beyond the range of audibility.

The patent says:

"By employing ultra-sound electromagnetic wave frequencies as the vehicle for transmitting telephonic and telegraphic

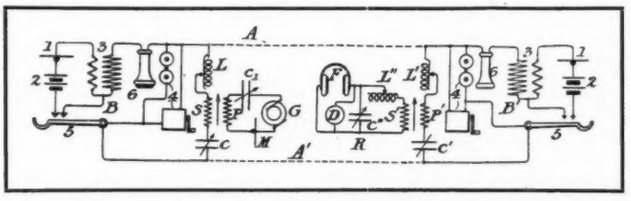


Fig. 1. Simple Form of Circuit for Duplex Telephony.

messages, it is evident that all harmful effects to any element of the battery telephone apparatus are immediately removed, since not only are any such effects very minute, in character, by virtue of the high period of the oscillations, but also, even if there were any effects in the telephone receiver, or transmitter, or any other part of the apparatus, it could not be detected by a human being, since the natural limitations of the ear afford a most effective and sure separation between all frequencies above 15,000 to 20,000 per second on the one hand, and all frequencies below 15,000 to 20,000 and down to about 16 per second, which is the lower limit of audibility. Therefore, a fundamental principle of this system may be said to be, from one viewpoint, the utilization of this unalterable characteristic of the human ear.

"With such frequencies as are used in ordinary battery telephony the so-called phenomenon of the 'skin-effect' is comparatively small, and the current is fairly well distributed throughout the cross-section of the conductor. As the frequency increases the skin effect becomes more pronounced and the energy appears to be more and more transmitted or stored in the ether surrounding the conductor. For this reason the battery telephone current is largely a conduction current through metal, and the ohmic resistance of the wire is one of the principal elements which limits long distance telephony at present, whereas in commercial wireless telegraphy, in which frequencies from 100,000 up to several millions are used, the impressed energy is chiefly radiated into the surrounding ether.

"In the intermediate range from say 20,000 to 100,000 and above the energy is largely carried by the ether, but is still sufficiently linked to the conductor to prevent excessive radiation into the ether. The conductor while carrying but a small part of the energy at its surface nevertheless acts as an efficient guide for the high frequency electromagnetic waves. In accordance with these principles, use is made of these efficiently guided electromagnetic ether waves as a vehicle to carry the telephonic or telegraphic message."

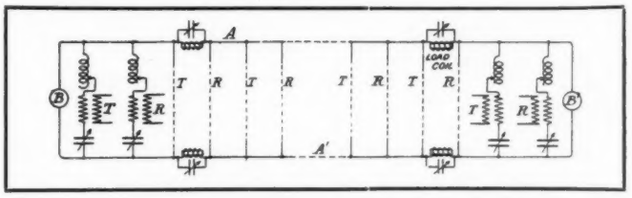


Fig. 2. Arrangement for Multiple Telephone Transmission.

By transmitting over a wire the high frequency magnetic waves which are precisely similar to those employed in wireless telephony through the ether, the inventor claims to obtain an enormous increase of efficiency. Ordinary telephone circuits are poor radiators of electromagnetic energy, and the ordinary cable circuit especially affords a circuit for such electromagnetic waves which produces a very closely bounded system, so that not only is high efficiency obtained in transmission, but cross-talk is eliminated.

Since a plurality of high frequency waves of different frequencies may be impressed on the same line, and since these may be selectively separated from each other by suitably tuned circuits, it is obvious that multiplex telephony may be accomplished. Also, for the reasons stated above, it has been found that these high frequency waves may exist on the same line with ordinary battery telephone currents without in any way affecting them, and thus this system of multiplex telephony may be applied to the usual

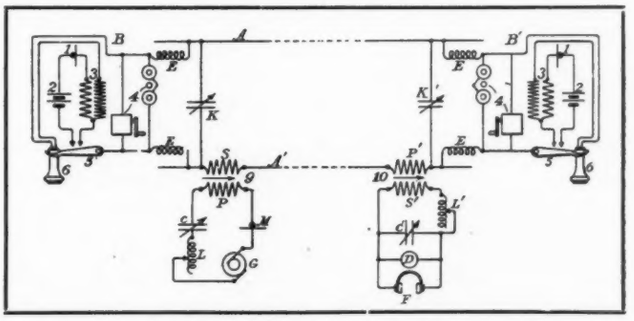


Fig. 3. Duplex Telephony with Series Connections.

telephonic circuits without the presence of harmful effects, such as cross-talk or other dusturbances.

In the receiving circuit for the high frequency wave message, detectors such as are used in wireless telephony or telegraphy are employed, as the oscillations are so rapid that they cannot affect the diaphragm of an ordinary receiver directly included in the circuit.

An embodiment of the invention in its simplest form is

shown in Fig. 1. The circuit contains the following elements:

It shows a common metallic circuit for ordinary telephony, across which are bridged the ordinary telephone sets B and B'. These telephone sets include the usual apparatus as in present use in local battery telephone circuits, there being shown a microphone transmitter 1 with its local battery 2 and the primary of the transformer 3. Also, there is shown connected in the usual way the ringing circuit 4 and the switchhook 5 with its receiver 6. The secondary of the transformer 3 is bridged directly across the line wires A and A' when the receiver is off the hook.

Bridged across the line wires A and A' at the same ter-

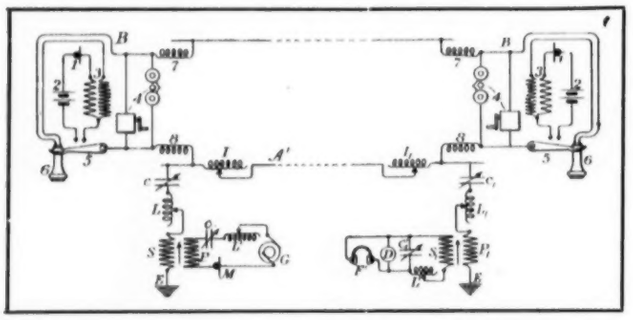


Fig. 4. Duplex Grounded Circuit Invested by Major Squier.

minals or at any convenient distance from the terminals of the common battery telephone there is bridged a circuit containing a variable inductance L, variable capacity C, and the secondary S of a transformer. The primary P of the transformer is in circuit with a generator G of high frequency oscillations, and in circuit with the generator is also included a variable capacity C_1, and a suitable telephone transmitter, such as a microphone transmitter M. The transformer above mentioned is so constructed as to be variable in its coupling, either by sliding one coil within the other, varying the angle between the planes of the coils, or by any other suitable well known arrangement. At the receiving end of the line there is bridged a similar circuit containing a variable inductance L' and variable condenser C' and the primary P' of a transformer. The secondary S' of this transformer is connected in series with a variable inductance L'' and a variable condenser C'', and around the condenser is shunted a detector D of the type commonly used in wireless telegraphy. In circuit with the detector is connected, in the usual way, the telephone receiver, as shown at F.

The operation of the device is as follows: High frequency oscillations developed by the generator are impressed on the bridge circuit containing the inductance L and capacity C, which oscillations then travel along the line wires A and A' and are received in the receiver R containing the oscillatory circuit L'' C''. If these oscillations are modified in any suitable manner, an effect is immediately produced in the receiver.

For giving the necessary variations to the high frequency current the microphone transmitter M placed in the circuit of the generator produces on the sustained oscillations of high frequency slight modifications in amplitude of comparatively slow period, but corresponding in every detail with the ordinary voice vibrations. These modified oscillations when received at R and transformed by the detector give a reproduction in the telephone receiver F of speech transmitted from the generator circuit. Since these oscillations are of such high frequency they will produce no effect whatsoever in the battery sets B and B', for the impedance of these sets is so high for these frequencies as to entirely prevent their passage. Furthermore, any telephonic currents transmitted by either of the sets B and B' will travel over the line wires at the same time as the high frequency currents, but they will in no way be influenced by, nor will they exert any sensible influence upon the high frequency currents. It has been found desirable in practice to tune the circuit comprising the line and bridges to the frequency of the generator by means of the variable inductances L and L' and the variable capacities C and C'. The condensers C and C' are also useful in preventing the passage of any telephonic currents from the sets B through the high frequency bridge circuit, for these condensers are of exceedingly small capacity, being measured in thousandths of a microfarad, and thus interpose too large an impedance for currents of ordinary telephonic frequencies. These condensers, however, when taken in connection with the inductances L and L', interpose a low impedance to the oscillations of such high frequencies as lie above 20,000 per second.

Under certain conditions it may be desirable to have in series with the telephone sets B and B' suitable inductance coils, which will be of such dimensions as to prevent the passage of the high frequency oscillations, but which interpose only small impedance to the ordinary telephonic currents. In practice, however, this is found to be unnecessary, for the telephones themselves contain sufficient impedance for the purpose.

Various forms of generator connections may be used, and several of them are shown and described in the patents. Modifications of the receiver circuit, such as are well known in wireless telephony and telegraphy may also be employed.

As a detector any form of integrating detector will give results, but the Audion is said by Major Squier to have given the best results of any used in his experiments.

Not only can a single high frequency wave message be sent over a circuit, but several of them, by connections as shown in Fig. 2. Under these conditions for transmitting a plurality of messages, each transmitter has a frequency of its own, and one receiver and its bridging circuit with the line are tuned to the frequency corresponding to that transmitter. All of these high frequency currents may exist upon the line simultaneously and have no perceptible effect upon each other, nor will they have any sensible effect whatsoever upon the ordinary battery telephonic currents transmitted in the usual way.

It may be desirable in certain cases to omit the ordinary battery telephonic sets entirely, in which case the multiplex telephony would be carried on entirely by high frequency currents of different periods.

In case a common battery telephone circuit is used, instead of local battery sets as shown, it will be necessary to shunt the repeating coils by variable condensers of such small capacity as to offer a high impedance to ordinary telephone currents but low impedance to the high frequency oscillations. Also, in

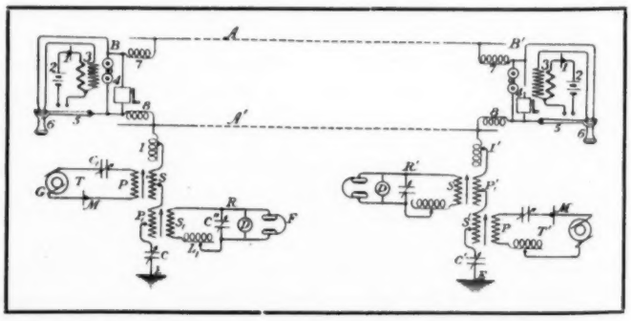


Fig. 5. Multiplex Telephony Over Series Grounded Circuit.

case of loading coils or other high inductances, it will be necessary to put in similar shunt condensers.

Use may be made of multiperiod generators, in which case the individual frequencies from said generators would be used in separate transmitter circuits.

While the circuits of Figs. 1 and 2 represent the high fre-

quency transmission and receiving elements in a bridged relation to the line circuit, the system likewise operates with these elements in serial relation. The high frequency oscillations are communicated from the transmitting equipment to the line, and from the line to the receiving circuit, respectively, through transformers, as shown at 9 and 10, Fig. 3. These transformers are made in such a manner as to give a variable coupling. This arrangement may also be used for a series multiplex telephony, the only difference from the bridging system being that a number of transformers are inserted serially and individual connections taken off, as shown in Fig. 3.

A separate patent covers the application of the system to grounded circuits.

In one case shown, the transmission from the ordinary battery telephone is effected over an ordinary metallic circuit, while the connection with the high frequency set is made to a single line wire at a point near the terminal of the ordinary telephone, and the high frequency transmission is effected from grounded terminal to grounded terminal over one side of the line.

Major Squier claims to have been able to effect this ground transmission without producing any foreign noises in the metallic circuit, as also without cross talk between the high-frequency and the battery telephone messages. He considers that this is made possible by the fact that the condensers C and C_1 are of a very small capacity, being measured in terms of thousandths of a microfarad and, as such, interpose an extremely high impedance to all currents of such low frequencies as the ordinary telephonic currents or disturbing currents from external sources. Furthermore, since these earth or ground connections fom a part of tuned circuits including the line, no disturbances from the earth are permitted to pass, since all such earth connections are tuned to frequencies entirely above audition. The result I obtain would be entirely impossible if condensers and inductances of such size as are now commonmonly used in telephonic practice were inserted in the circuit, for such condensers and inductances are very large indeed compared to the ones I actually use. In some cases, the condenser C on the transmitter end may be omitted, but, in general, results are more satisfactory with both condensers C and C_1 in circuit.

This invention is also adaptable to multiplex telephony or telegraphy for transmission over a single grounded line circuit. A modification of this grounded transmission system which may be made in practice is the serial connection of several high frequency sets between the line and ground through the medium of transformers, as shown in Fig. 5. This arrangement is covered by a separate patent.

At the present time these patents comprise all the information which is given out for publication by Major Squier and the Signal Office. It is to be hoped that an invention of this importance will soon become more fully known through the issuance of information as to the actual scope of the experiments which have been tried, and particularly bearing upon the adaptation of the invention to ordinary commercial conditions.

Northwestern Cedarmen Hold Fifteenth Annual Convention at Minneapolis on Tuesday and Wednesday.

The fifteenth annual convention of the Northwestern Cedarmen's Association met in the Empire room of the new Radisson Hotel, Minneapolis, Tuesday morning, January 10.

Representatives of the following concerns were in attendance: Hall L. Brooks Co., Tomahawk, Wis.; Cloquet Tie & Post Co., Cloquet, Minn.; Coolidge-Schussler Co., Minneapolis; Crawford Cedar Co., Menominee, Mich.; L. K. Deal Lumber Co., Des Moines, Ia.; Duluth Log Co., Duluth, Minn.; Erickson & Bissell, Escanaba, Mich.; McGillis & Gibbs Co., Milwaukee; McCulloch & Moss Lumber Co., Minenapolis; Meloney Bros., Spooner, Minn.; Minneapolis Cedar & Lumber Co., Minneapolis; Naugle Pole & Tie Co., Chicago; National Pole Co., Escanaba, Mich.; E. C. Norton, Escanaba, Mich.; Page & Hill Co., Pendleton & Gilkey and T. M. Partridge Lumber Co., all of Minneapolis; Valentine-Clark Co., Chicago; White Marble Lime Co., Manistique.

After the reading of the minutes, President T. M. Partridge read his report, the conclusion of which was as follows:

> Now just a word in regard to the business conditions which confront us. You will note by the comparative statistics which our secretary has prepared for us, the enormous reduction in stocks of both posts and poles. This certainly means something to us. A condition has now been thrust upon us that we should not be slow in taking advantage of. The volume of trade during the past year has been good. More than double the preceding year. During this increased demand and reduction of supply our prices have not improved proportionately. In the absence of any combination for our own betterment are we also immune to the recognized law of supply and demand? Prices during the past year have not been altogether satisfactory. They now are very low on some sizes, but are showing improved strength in spots. We cannot forever continue to sell our products at about the cost of production. We are entitled to a living profit. Let us pull together and see if we cannot improve this unfortunate condition of our business. The promise of a large demand during the coming season seems to be assured. This is especially true of class poles, for which there is a growing demand from all sources of consumption, creating a serious problem with which sooner or later we have got to contend. What are we going to do with the stock that is left after taking out the class? There is a remedy. We have got to demand such a spread in prices between class and woods-run poles that there will be no particular economy in the purchase of class stock. We must make a united effort to sell our stock woods-run.
>
> Now let us all get together and make a united effort to secure a living range of prices. Any other course will result only in the survival of the fittest. Let us make market reports oftener and report honestly. Let us hide petty jealousy and the effort for undue advantage. Let the spirit of 1906 pervade and let us try to secure better values. The future is full of promise and the opportunity is at hand.

The report of Treasurer W. B. Thomas was adopted as was also that of Secretary H. H. McKinney.

A congratulatory letter from Mr. E. H. Valentine, of Chicago, the association's only honorary member, was read by the president.

Mr. Robert Ritchie, representative of the Manley-McClellan Fire Insurance Agency, of Duluth, read a paper which evoked a lively discussion relative to the rates and conditions which exist in Minnesota, as compared with those in Wisconsin.

A committee was appointed to investigate means of improving the insurance situation.

Several amendments were endorsed for the new cedar pole specifications for 1911.

T. P. Bradley, chairman of the pole committee, reported about 800,000 fewer poles of 20 feet and longer on hand today than a year ago.

It was moved and carried that the association issue a monthly statement showing the aggregate number of poles of each size shipped during the preceding month.

It was decided that members should not quote prices to any commission man who represented any other member of the association, the secretary to furnish members with a list of all commission men and the names of the firms whose products they were handling.

On Tuesday evening the delegates sat down to an exceptionally fine banquet in the Radisson, the announcement

of which stated explicitly that it was to be held "Tuesday night and Wednesday morning." Those who were present knew that the food was excellent and the wine unsurpassed, but most of them were somewhat at a loss to read the card, which was printed in Swedish, and was as follows:

MATSEDEL.

"Tuppsvans"
Kaviar med Rostadt Bröd
Blue Point Ostron
Köttsoppa med Frikadeller
Oliver Celeri Radisor Saltade Mandlar
Lax-Musslin Pariserpotatis

Sauterne
Unghöns a la Alexandra
Nordpols-Sorbet
Späckad Oxhare a la Jardiniere
Georgiapotatis

Champagne
Hjarta de Pottue
Fantasiglace
Bakelser

Ost Kex Mockakaffe

Apollinarisvatten

Among other songs composed by some genius to be sung to familiar tunes on the bill of fare was one under the caption, "Here's to Good Old White Cedar," which went to the tune of "Put on Your Old Grey Bonnet." And it was sung; so were the others. The first verse of the white cedar song was as follows:

At the head of the table, sits our leader young and able;
Around him a bunch of cedarmen;
And though it's now forgotten, surely trade was very rotten
In nineteen hundred and ten.
We're congenial and we're happy, though our stock may be sappy,
And the butts may be rotten to the rim;
So lift up your glasses, and drink to bright-eyed lasses;
Then join in the chorus with a vim:
Here's to good old white cedar;
It will always be a leader;
Wherever you put it, it will stay;
And you'll read on the last pages
Of the story of the ages,
How it lasted till the judgment day.
(Repeat.)

The convention was an absolute and unqualified success and the delegates finally departed filled with the joy of life and the positive assurance that this is a pretty good old world after all.

The election of officers resulted as follows: T. M. Partridge, Minneapolis, re-elected president; E. C. Norton, Escanaba, vice-president; W. B. Thomas, Manistique, re-elected treasurer. J. W. Benham, Chicago, and H. S. Gilkey, Minneapolis, were elected directors.

Further from Bion J. Arnold and Donald M. Carter on Frank L. Perry's Telephone Duplexing System.

Desiring to correct statements printed in this paper last week, in which they were quoted regarding the operation over two years ago, of the telephone duplexing system of Frank L. Perry, of Chicago, Mr. Bion J. Arnold and Mr. Donald M. Carter have communicated with Mr. Perry and with this paper, the gist of their letters being given below.

As will be recalled Mr. Carter, who is a prominent patent attorney of Chicago, and Mr. Arnold, the celebrated electrical engineer and traction expert, were both quoted as saying that they had been present over two years ago at demonstrations of Mr. Perry's system, and at that time two "conversations" had been carried on simultaneously over one circuit.

Mr. Perry wishing to claim only the degree of merit to which over two years ago his invention was justly entitled, called the attention of both gentlemen to a proper and necessary correction. Mr. Arnold, therefore, referring to his letter, written under date of Nov. 6, 1908, and which appeared in TELEPHONY, now writes as follows:

> In carefully reading tihs letter I find that it may be open to misinterpretation. For example, I note that I stated that Mrs. Perry, my daughter, and you and myself talked simultaneously over these circuits. I, of course, did not mean by this that we all talked at one time, because we all know that no four people could properly understand each other if they all talked simultaneously. Therefore, in order that there shall be no misunderstanding, I wish to state that what I meant to convey by that letter was, that on November 4, 1908, you successfully, during the same period of time, transmitted two telephonic messages in one direction over the same circuit, apparently without any interference. One of these telephonic messages was an ordinary "to and fro" telephonic message, a conversation between two parties, one at each end of the line, these parties talking alternately, while the other message, during this same period of time, was a transmission of another voice in one direction only over this same one circuit, to a listener, that listener some of the time being myself.

Mr. Carter has the following to offer, commenting upon his statement which also appeared in this paper:

> I have read the article in the issue of TELEPHONY of January 7, 1911, containing my statement of the discovery of duplex telephony by Mr. Frank L. Perry more than two years ago. This statement is correct, except that my use of the word "conversation" might need explanation. In using the word "conversation" in this statement I wished to convey the idea of the transmission of the human voice rather than the dictionary definition of "conversation."
>
> I might more accurately set forth the facts by stating that "More than two years ago, Mr. Frank L. Perry, of Chicago, exhibited to me in his laboratory an electrical telephonic duplexing apapratus, which I examined carefully while in operation, and by means of which, in my presence, two telephonic messages were simultaneously transmitted over the same circuit without interfering with each other.

Mr. Perry's frankness and his evident desire to be absolutely accurate as to his claim that he had accomplished duplex telephony over two years ago should go far to prepossess the public in his favor.

Comparisons Between Leased Wire and Long Distance Telephone Revenue.

The additional expense for preparing to lease telegraph privileges on established toll circuits consists of installing special equipment, which represents but a small investment.

The additional operating expense can be figured on a monthly basis. Expert telegraph operators are required to handle the service. Repeaters which relay telegraph messages require constant supervision to insure readable "Morse" signals.

The service is in demand by brokers, manufacturers and other commercial enterprises which require constant information of the condition of the market and instantaneous notice of its fluctuations.

The revenue from long distance telephone service varies from day to day and month to month. It is affected by commercial depressions of small magnitude—due entirely to local conditions, such as a crop failure over a small area. Morse contracts are affected only by wide spread depression in trade and commerce.

Queries on Theory and Practice

Cross with Frame Would Blow Cord Fuse.

A "short" between the tip and sleeve sides of a calling plug of our common battery board behaves as follows:

When the tip is touched to the metal facing of the board it blows the fuse. Again, with the cord in its normal position, if its relay is worked by hand, the fuse will also blow. With the cord in normal position, if the key is thrown backward into the ringing position the fuse will go out.

I have traced out the wiring code, and wires seem to run properly, also examined relay, key and plug. All contacts and springs seem O. K. Yet the short remains. Will you suggest a few tests? This board is the unit type made by the Stromberg-Carlson Co.

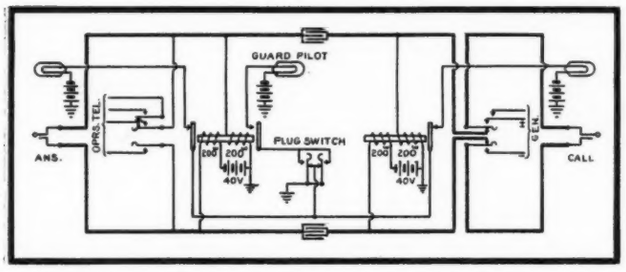


Fig. 1. Circuit Which Was the Seat of a Baffling "Short."

(non-multiple) and is giving the best of satisfaction. The rest of the cords are O. K. If the cord fuse is doubled up, then the tip and sleeve fuses on the power board will blow.

The blowing of a fuse when the tip of the plug is touched to the metal frame of the switchboard is, no doubt, caused by the sleeve or "live" battery being crossed with the frame of the switchboard, and the winding of the cord relay on the tip side of the line being "short." The sleeve battery can become crossed with the frame at the line lamp jack. These jacks have a common plate, which is connected to a common bus bar, which in turn is connected through the pilot relay to sleeve battery. This common plate is not connected to the frame of the jack,

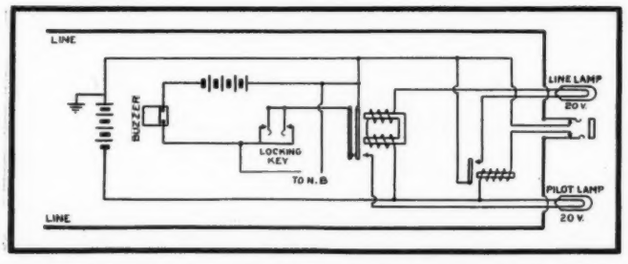


Fig. 2. Line Circuit—Jack May Have Been Crossed with Frame.

but it is possible that small particles of metal lodge in the jack and "short" it with the frame. It is a very simple matter to determine which bank of jacks is grounded with the frame, by removing individually from the bus bar the wires leading to the lamp jacks, and then testing the individual strips of jacks to determine which one is grounded. We hardly see how the relay on the tip side can become crossed, but this can very easily be tested by removing the wires from the relay and testing the windings against the frame contacts, etc.

Our advice would be to remove first the "short" between sleeve battery and the frame, and then disconnect the wires from the relays, plug switches, etc., associated with this cord, and test these pieces of apparatus for any possible "shorts" or crosses. Also test out supervisory lamps for a possible "short." Also, while leads are disconnected from relays, etc., test the wires for a possible "short."

The blowing of a fuse when the ringing key is thrown, when the cord is in normal position, makes it appear as though there were "live" battery on the generator instead of ground. This can be determined very easily by removing the generator common and testing to either side of the battery.

Pressure Varies Resistance Between Platinum Contacts.

The curtain that got fast on a generator handle and opened the shunt reminds me of a case of my own some time ago.

Complaints came in that the bell on a certain country telephone did not ring properly. After a considerable annoyance and trouble, both to me and the subscriber, the trouble was shown to be lack of pressure in the shunt springs.

Inasmuch as my case did not show open, but the bells rang poorly, I reason that there must have been resistance sufficient to reduce the current below the amount necessary to operate the bell; if so, can this be accounted for by lack of pressure, or were the contacts dirty? When the shunt springs were taken apart they looked clean, and increasing the tension permanently cured the trouble. How high resistance can be produced by light pressure between platinum contacts if they are clean? I have always supposed it was a zero resistance contact, or open.

The resistance of a contact between two metals depends upon the pressure. You can have a light pressure with high resistance, as in your case.

Of course the change from low to high resistance and even to an open circuit is often so sudden that it gives the impression of being instantaneous. That is, with a very slight change of pressure you can get a very large change of resistance. But your trouble was undoubtedly due to imperfect contact due to light pressure.

More About Combining Cable Systems.

In your issue of October 8, you answer a query as to the method of combination of two telephone plants, and since I am personally interested in the proposition I am writing to you concerning it. The facts are as follows: In the cable of the plant absorbed all pairs are within one hundred feet of the second exchange. The company has on hand, ready for installation and not in use, ample terminals to provide for the entire cable pairs of the plant purchased. It will only require 180 ft. of cable to bring it into the terminal room. Would it not be best to splice the cable, bring it into the terminal rack, install terimnals, test the pairs; then as the old service is cut out the new can be cut in? Then after it is in, you will not be required to have the terminal box outside.

From the additional data which you give concerning the conditions, it seems better to follow the plan which you outline. This is especially true if you can get enough business to use 75 per cent of the pairs in the 250-pair cable. It is highly advisable to cut out the terminal box outside unless it is needed to feed near-by subscribers.

Ground All Lightning Arresters!

I would like to know your opinion and experiences of others in regard to the placing of a ground protection at rural and also local or town telephones.

A lightning arrester is no good without a ground, and if you do not have lightning arresters you are not only likely to have your apparatus burned out, but also you are liable for damages if a subscriber tries to telephone during a thunderstorm and is killed. By all means use first-class lightning arresters, and ground them well, whenever your lines are run any considerable distance in open wire. With all underground cable distribution, there is no exposure, hence no need for protection.

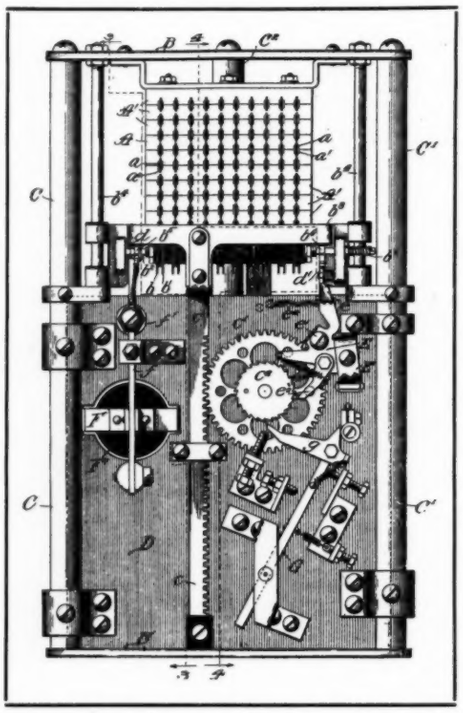
From the Patent Office

By Max W. Zabel.

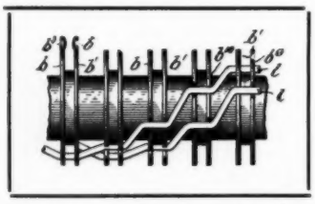
AUTOMATIC EXCHANGE SELECTOR.

H. B. Holmes, Park Ridge, and E. B. Craft, Chicago, Ill., patent 980,417, Jan. 3, 1911, assigned to Western Electric Co., Chicago, Ill.

The invention contemplates an automatic line selector switch and has a plurality of contacts *a*, a^1, of ten rows vertically, each having ten sets of contacts. A shaft b^6 is used,



which carries a plurality of pairs of contacts *b*, b^1, of which all the contacts *b* are connected together and all the contacts b^1 are connected together. Each set of contacts *b*, b^1 has projecting contact elements b^3, b^5, and the elements b^5 of each set are displaced angularly thirty-six degrees from the



adjacent set so that there are ten sets of contact elements b^3 disposed about the periphery of the shaft b^6. The shaft b^6 is first moved bodily in a vertical direction opposite the row of contacts desired and is then rotated so that the desired pair of contacts *a*, a^1 is engaged by the projecting contact elements b^3.

MULTIPLEX TELEPHONY AND TELEGRAPHY.

G. O. Squier, of the United States Army, patent 980,356, Jan. 3, 1911; Dedicated to the Public.

What seems to be a very important improvement of the art of telephony is set forth in this and the three following patent applications. Small space is given here, as the inventions are described elsewhere in this issue of TELEPHONY. The four inventions mentioned are dedicated to the public and therefore open to universal use. This present invention contemplates the use of frequencies between 20,000 and 100,000 cycles per second. Quite a number of currents of these frequencies may be obtained on the same line without interference. Tuned sending and receiving circuits, including the ordinary receiver and transmitter, are used for impressing voice currents on these currents of high frequencies so that a number of independent conversations can be carried on over the same circuit. The present invention shows a bridging system.

MULTIPLEX TELEPHONY AND TELEGRAPHY.

G. O. Squier, of the U. S. Army, patents 980,357, 980,358 and 980,359, Jan. 3, 1911; Dedicated to the Public.

This patent is an improvement over patent No. 980,356, and shows a series system.

TELEPHONE EXCHANGE.

N. E. Norstrom, Chicago, Ill., patent 980,883, Jan. 3, 1911, assigned to Anderson Elec. & Mfg. Co., Kansas.

In the lockout system herein disclosed a central station calling device is set forth which is moved by hand from its normal position and is then automatically returned to its normal position during the calling operation. The device sends impulses in opposite directions over the line circuit and has means whereby the impulses in one direction are broken up into a series of very short impulses. Connections are under the control of the terminal part of the movements of the device from and to normal position, which are so arranged that the impulses in one direction will be broken when the device is moving from normal and the impulses in the other direction will be broken when the device is moving toward normal.

VILLAGE TELEPHONE POLICE CALL.

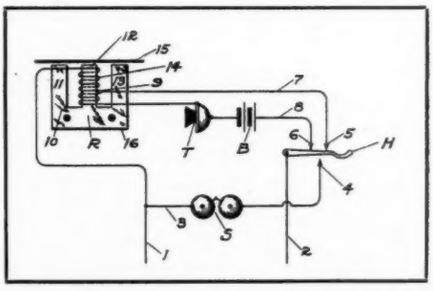
G. W. Herrick, St. Marys, Pa., patent 980,256, Jan. 3, 1911.

In a police call system a subscriber's telephone line has bridged thereto local street signals for calling the police. When the subscriber calls up and notifies "Central" to call the police, the insertion of the plug in the jack causes the operation of the signals.

TELEPHONE SYSTEM.

W. W. Dean, Elyria, O., patent 980,613, Jan. 3, 1911, assigned to Dean Electric Co., Elyria, O.

A combined receiver and induction coil is set forth herein, in which the receiver diaphragm 15 is under the influence of



the secondary coil 12, which forms one end of the winding on the core 16. The other end of the winding is in series with the transmitter *T* and the battery *B*, and thus forms what might be called an auto-transformer.

Legal Cases and Decisions

By A. H. McMillan.

Collecting Penalty Above Regular Rate.

Can a telephone company operating in Indiana and Michigan legally collect a penalty in excess of the regular rental rate, when the rental is not paid according to regular terms?

Our intent is not to raise rates, which are too low to allow a discount for prompt pay, but we need a financial argument to secure prompt payment.

What is the best and quickest means to cancel any or all old existing contracts?

There is no decision in Michigan or Indiana either granting or denying to telephone companies the right to collect a penalty in excess of the regular rental, when the rental is not paid according to regular terms. Although the courts of those states would not be bound to follow the decision of another state, we believe they would follow the case decided by the Supreme Court of Washington last June. In that case it was held that a telephone company might enforce a rule providing for the payment of rentals from subscribers in advance and for an additional charge in case of non-payment by the 10th of the month, even though such additional charge made the total amount collected greater than the maximum rate provided for by the franchise.

In that case the court cited an Indiana case and reasoned as follows:

"It will not be doubted that a telephone company has the power to establish rules and regulations for the operation and conduct of its business in a given territory when such rules and regulations are reasonable in their requirements, and not in conflict with any provision of general law, or any special provision of the franchise, under which it obtains and exercises its rights in the territory. Telephone companies, being public service corporations, are charged with certain public duties, which they may not refuse, and any rule or regulation which falls within the character above referred to which is reasonably proper and necessary to enable them to fulfill and discharge these public duties and render the public efficient service will be enforced. A rule requiring the payment of its monthly rentals in advance is a regulation of the permitted character, and so is the further regulation that, unless the service is paid for in advance, it may be denied. The company being bound to render the public efficient service, it has the right to enforce such rules as will provide for the prompt payment of its rentals, and thus provide for the securing of funds with which it may insure and protect the efficiency of its plant and keep it as such a standard as will enable it to discharge its public duties, when called upon to do so, either voluntarily at the request of the individual, or involuntarily at the command of the courts. Being a public service corporation, it is compelled to serve the individual when such service is demanded, but this does not take from it the right to demand that the continuance of such service be conditional upon the prompt payment of a reasonable rental, which shall be sufficient to enable the company to render an efficient service to its patrons, and at the same time provide a reasonable profit for itself. This is the reasoning upon which the courts have held companies of this character justified in withdrawing their service, when their charges are not promptly paid, or where a regulation fairly and generally beneficial to the company and its patrons remains uncomplied with. Rushville Co-op. Tel. Co. v. Irwin, 27 Ind. App. 62, 59 N. E. 327; Hewlett v. Western Union Tel. Co. (C. C.), 28 Fed. 181; McDaniel v. Faubush Tel. Co., 106 S. W. 825, 32 Ky. Law Rep. 572; Jones Telegraph & Telephone Companies, 341, 352. Manifestly, if all the subscribers of appellant continuously refused to pay their rentals in advance, and thus necessitated the employment of collectors, additional office force, and the incurring of other expenses incident to the collection of such rental the moneys thus expended must be taken from the revenues of the company, and thus impair a fund to which the company must look for the expenditure necessary to keep its plant in the highly efficient condition required and demanded because of the public nature of the service. It is, therefore, not unreasonable that the company adopt a rule and enforce a regulation providing for the payment of its rentals in advance, and for an additional charge in case such requirement is not complied with. Such a charge is not an addition to the maximum rate provided for in the franchise. It is rather a charge for default and delinquency, which may be avoided by a compliance with the reasonable regulation for the payment of rentals in advance."

You also ask what is the best and quickest means to cancel any or all old existing contracts. This question is difficult to answer without our knowing all of the terms and conditions of such contracts. If the contract is valid, you have no right to cancel it, and your only way is to secure the consent of your subscriber. This is sometimes done by rendering such subscriber poor service under the existing contract and promising him better service under a new one. We think, however, that such a proceeding does not operate in the long run to the advantage of a company. If your people are fair you can educate them into a frame of mind for doing the right thing.

Violating the Postal Laws in Collections.

Several employes of the Home Telephone & Telegraph Co. at Los Angeles, Cal., have been called before the United States Grand Jury, supposedly in connection with an alleged unintentional violation of the postal laws. During the last few months, the telephone company had placed with a collection agency various delinquent accounts for collection. On the envelopes sent out with the bills the statement was printed that the agency, with which the telephone company had nothing to do, was a collection agency. This is said to be a violation of the postal law. The printing on the envelopes was not brought to the attention of the company's officials so they were perfectly innocent of any intentional offense.

No Free Telephones in Oklahoma Post Office.

Will you please tell me the law governing the installing of telephones on a free or reduced rate basis?

This is purely a rural system, operating about 425 telephones, of which 175 are local in the city. One post office wants a telephone at reduced rates, arguing that it is to the benefit of the farmers, which it is. Can we install the telephone at reduced rates according to law?

The law of Oklahoma in regard to all public service corporations is that all patrons must be treated equally. In the case mentioned it would be against the law of Oklahoma for an exchange of any size to allow reduced rates to a post office.

Obligation to Pay When Party Desired Is Not Reached.

The Public Service Commission of New York, second district, has received a complaint from J. H. Van Duzer & Co., of Newburgh, directed against the toll charge made by the New York Telephone Co. between Newburgh and Tuxedo Park.

The complainant has no alternative but to pay the 25-cent charge between Newburgh and Tuxedo whether he secures the party desired or not. He is obliged to call by number and take his chances as to whether his correspondent can be reached by that number.

The company has been asked to answer the complaint within twenty days.

From Factory and Salesroom

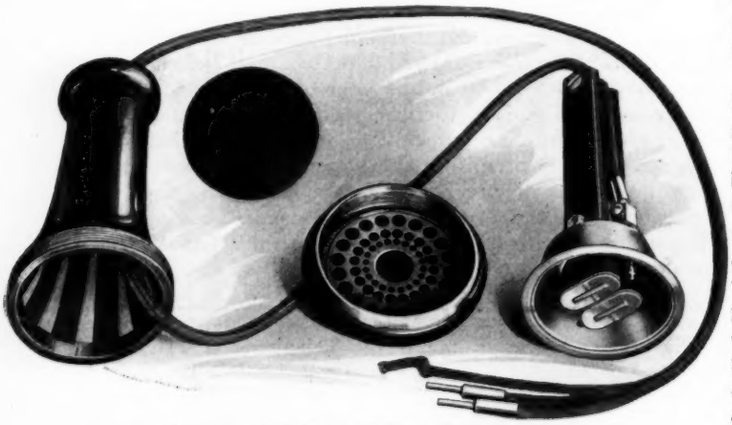
Conventions: Nebraska, Lincoln, Feb. 8-9; National Convention, Chicago, Feb. 8, 9, 10.

Kellogg Company's New Receiver.

The Kellogg Switchboard & Supply Co. has put on the market a reinforced receiver which has proven as successful and popular as its steel, reinforced rubber insulated mouthpiece.

This great improvement in the fragile, old style receiver and mouthpiece was perfected after careful study and experiment. Like the mouthpiece, also described in these columns, the receiver is composed of a metal ribbed frame, around which the rubber insulation is forced by special machinery under great pressure.

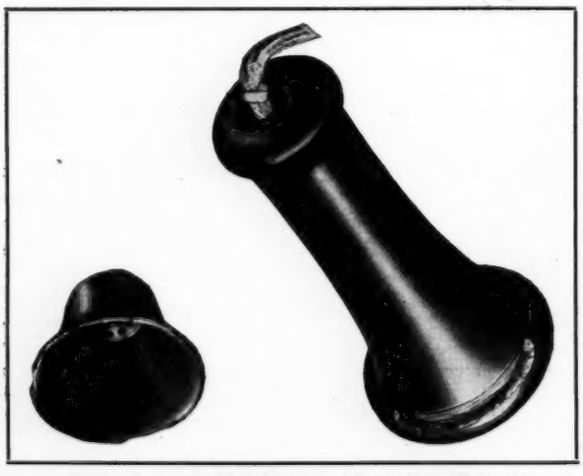
This process insures freedom from cracking and chipping.



Disassembled View of New Kellogg Receiver.

The cap of the receiver is reinforced by a metal perforated disk, flanged at the outer edge. This disk is perforated, allowing the insulation to secure a firm hold, the flange at the edge of the disk protecting the threaded portion of the receiver cap.

The photographs herewith reproduced illustrate a severe test to which one of these receivers and mouthpieces were recently subjected. The illustration is from an actual photograph



Receiver and Mouthpiece After Severe Test.

of an unbreakable receiver and reinforced mouthpiece, which were thrown against a cast-iron steam radiator by Mr. J. J. Jennings, superintendent of Telegraph, Chicago, Rock Island & Pacific Railway. This was done, not in a fit of anger, but as a test. Both receiver and mouthpiece were uninjured. The photographs also show a disassembled view of code 32-A Kellogg reinforced receiver.

The company has issued a booklet describing this receiver, which it will send promptly on request.

These Kellogg reinforced receivers and mouthpieces, it is stated, soon pay for themselves in their entire freedom from breakage maintenance expense.

A Fire Alarm System and the Automatic Telephone.

The Denio General Electric Co., of Rochester, N. Y., has recently perfected a fire alarm box for use in connection with the lines of an automatic telephone exchange that appears to fulfill all the requirements of a perfect fire alarm service.

In this system the fire alarm box is connected to any operating telephone line, and so arranged that, upon breaking the glass and pushing a button, the telephone normally connected to this line is temporarily cut off and the connection to fire headquarters is automatically and instantaneously established through the automatic switchboard. The fire alarm box immediately proceeds to register its own number upon a tape at the fire headquarters, repeating the registering three times, the usual tape punching apparatus being employed for this purpose. As soon as the transmission of the alarm has been completed, the fire alarm box restores the telephone line to its normal condition so that the telephone may be used immediately. Before beginning the transmission of the alarm the fire alarm box automatically releases any connection which may be established on the line.

Three styles of fire boxes are furnished. For residences, stores and places requiring only one station, a handsome mahogany box is placed in any desired location and operated as indicated above by breaking the glass and pushing the button.

For factories, hotels, schools and large buildings a transmitting device enclosed in an iron case is placed in any convenient location in the building and may be operated by push button as in the residence type, or connected with a thermostat system, whereby the fire alarm signal would be automatically sent in upon the operation of a thermostat in any part of the building. Where the thermostat equipment is used bells are installed upon each floor of the building which give a local alarm at the same time the fire alarm is being transmitted to headquarters.

For small cities having no fire alarm system, an iron street box is provided which may be placed at a telephone pole or in any desired public place and connected with any operating telephone circuit.

The fact that this fire alarm system operates on lines which are subjected to a test many times a day renders this method of giving fire alarm service particularly reliable. In the automatic system of telephony the fire department is usually given a low number which is called practically instantaneously by the transmitting device of the fire alarm box, and the time required to transmit the signal is the same at all hours of the day or night.

Cement Age and Concrete Engineering Consolidated.

Cement manufacturers, architects, engineers and contractors will be interested in the announcement that Cement Age, of New York, and Concrete Engineering, of Cleveland, two of the leading monthly publications in the cement field, have been consolidated. Cement Age, which was established in 1904, has

been issued under the editorship of Mr. Robert W. Lesley, vice-president of the American Society for Testing Material and an associate of the American Society of Civil Engineers, who is also one of the most prominent figures in the cement industry in this country. Cement Age has covered the popular features of cement construction, as well as the engineering and manufacturing side of the industry, and Concrete Engineering has been especially devoted to that branch of the industry indicated by its title.

Beginning with the January, 1911, issue, the two magazines will be consolidated under the title: "Cement Age, with which is combined Concrete Engineering." The magazine will be slightly larger than the present size of Cement Age, and will have a type page 6x9 inches, thus retaining the distinctive magazine form which has been a popular feature of the older publication. The increased space will be more acceptable to both readers and advertisers. A two-column makeup will be a further innovation.

It is the purpose to preserve the best features of both the magazines, thus maintaining the prestige each has won. The use of cement from the architectural and engineering standpoints, as well as its manufacture, will be thoroughly covered, together with the popular features that are of such great interest to the general public.

Allen Brett, editor of Concrete Engineering for the past two years, will take the position as associated editor of the new publication, and Arthur E. Warner, formerly business manager of Concrete Engineering, will become western manager. There will be no change in the present staff of Cement Age, Mr. Lesley continuing as editor; Frederic F. Lincoln as president of the Cement Age Co., in charge of the New York office, at 30 Church Street, and of the eastern advertising field; and Edward A. Trego as associate editor.

Well-Known Engineer Has Had Good Work from "Telafault."

The following letter recently received by W. N. Matthews & Bro. has a bearing on the work of nearly every telephone exchange:

Referring to your letter of December 22, with reference to the sample Telafault, which was shipped us August 4; we have tested out this instrument and find that it works perfectly satisfactorily. We find that this Telafault does not interfere at all with the service of the telephones which are not entirely "out" when testing.

Central Home Tel. & Tel. Co., L. C. Griffitts, Engineer.
Louisville, Ky.

Quick Work by Stromberg-Carlson Representative.

In the course of a recent fire at La Grange, Ky., twenty miles from Louisville, the exchange of the Oldham Telephone Co. was gutted.

J. B. Wilkinson, the Louisville representative for the Stromberg-Carlson Telephone Mfg. Co., of Rochester, N. Y., immediately contracted with the Oldham company for the delivery of a 300-line switchboard, and the apparatus was installed in the Oldham company's exchange within four days after the fire. The fire loss of the Oldham concern is estimated at $2,000, partly covered by insurance.

"Pyrene" Fire Extinguishers Grow in Favor.

Jas. B. Hoge, president of the Electric Appraisal & Inspection Company, Cleveland, advises us that the "Pyrene" Fire Extinguisher, which that concern handles, is becoming more and more popular with telephone companies. They are also well adapted for use in offices and a large number of them have been placed in various Cleveland offices by the company. They are said to quickly subdue a fire without in any way injuring books or papers. The Home Telephone & Telegraph Co., of Los Angeles, Cal., has written Mr. Hoge's company stating that it has given the extinguishers a thorough test and now expects to equip each of its exchanges, requiring from 75 to 100 extinguishers.

Hall Brooks' New Safety Hook.

Hall L. Brooks, of Tomahawk, Wis., who for many years has been a prominent factor in the cedar pole producing industry, is the inventor and manufacturer of a new style safety hook, commonly known as a "fid hook" and employed extensively in logging operations. The new device already has been adopted by several large lumber concerns and railroads. A full page advertisement of it appears in the American Lumberman of December 31.

Increased Facilities for Massachusetts Chemical Co.

The Massachusetts Chemical Co., manufacturers of liquid electrical insulation, tapes and splicing compounds, is moving into the extensive additions to its plant at Walpole, Mass. The new four-story manufacturing building, a four-story reclaiming building and a new power plant aggregate about three acres of floor space.

Battery Man Touring the South.

Mr. A. E. Bosley, representative of the American Carbon & Battery Co., East St. Louis, Ill., is making an extensive trip through the South in the interest of that company's carbon and graphite products, and wet and dry cells. He will visit Nashville and Chattanooga, Tenn., Atlanta, Macon and Savannah, Ga., Jacksonville, Fla., Birmingham, Mobile and Montgomery, Ala., New Orleans, La., and Memphis, Tenn. Mr. Bosley will be glad to call on any parties interested in these products, and can be reached by addressing the company's home offices.

American School of Correspondence, Chicago, Ill., is issuing a circular setting forth an attractive proposition on its Cyclopedia of Applied Electricity.

These books cover many phases of the whole electrical field in a thoroughly practical way. One volume is given up to Telephony. Among the subjects covered may be noted the following: "How Is the Wheatstone Bridge Used?

"When Should Lightning Arresters be Used?

"How is the Speed of a Shunt Wound Motor Varied?

"How Should Storage Batteries be Cared For?

"How is the Busy Signal Given on the Automatic Electric Company Telephone System?

"How to Install Conduit and What Is the Duty of a Wire Chief?"

Stromberg-Carlson Tel. Mfg. Co., Rochester, N. Y., has issued seven new circulars illustrating and briefly describing prominent items in its line of local battery and central energy sub-station sets. These are to be commended for the brevity which characterizes the statements of the essential characteristics of each instrument which assist a busy man to make a selection of the right set for a particular purpose or location.

The Stromberg-Carlson Telephone Manufacturing Co., Rochester, sent the following appreciation, in appropriate holiday dress, to its many friends in the field, expressing its good will: "The Spirit of the Season prompts us to express to you our appreciation for the business entrusted to us during the past year—and we wish you a prosperous year to come."

Condensed News Reports

Officers of companies are earnestly requested to forward us promptly all financial and other statements as soon as issued and any items of interest as to their plants and systems

PERSONAL.

MR. W. R. HIRST, local manager for the Central Union Telephone Co. at Anderson, Ind., has been made plant superintendent for the company.

MR. L. C. GOODEN, for some years secretary of the Worth Mutual Telephone Co. of Parnell, Mo., has resigned from that position to take up other duties.

MR. J. LLOYD WAYNE, division equipment for the Central Union Telephone Co. at Indianapolis, has been made traffic superintendent for the company.

MR. W. E. A. NOTTORF has succeeded Mr. H. E. Davis as superintendent of operation and equipment for the Topeka Independent Telephone Co. at Topeka, Kansas.

MR. A. A. ADAMS, for several years secretary for the Whitley County Telophone Co. at Columbia City, Ind., resigned that position. George E. Pontius has succeeded him.

MR. THEOR. DE MERS, who has had charge of the Hibbing exchange of the Mesaba Telephone Co. for some time, has been made manager of the Eveleth exchange of the company.

MR. ALONZO BURT, president of the Wisconsin Telephone Co., lectured on "Some Phases of the Telephone Business" at the Marquette University. The lecture was illustrated by slides.

MR. W. J. STICKNEY, formerly district superintendent of the Central Union Telephone Co. at Anderson, Ind., has been appointed commercial superintendent for the company for the state.

MR. T. R. GENTRY, who has been in the vice president's office of the Southern Bell Telephone Co. in Atlanta, Ga., has been transferred to Charlotte, N. C., where he will have charge of the North Carolina and South Carolina division of the company.

MESSRS. JOHN LEE, J. STEWART JONES, A. W. MARTIN AND T. F. PURVIS, of London, England, representing the Post-Office Department of the British Government, are in this country on a tour of inspection of the telephone systems of the United States, it is reported.

MR. A. F. ADAMS, of Joplin, Mo., has been appointed general manager of the Home Telephone Co. of St. Joseph, and representative to the president, Mr. Theodore Gary. Mr. R. W. Frey will have charge of the commercial department of that company; Mr. N. F. Furst has been made superintendent of the St. Joseph Long Distance Telephone Co., and Mr. F. Malthaner, superintendent of construction. Mr. H. E. Davis is superintendent of operation and equipment.

MR. A. V. KEYES, who has been manager for the Orcville, Calif., system of the Pacific States Telephone and Telegraph Company since last summer, has been appointed special agent for the company with headquarters at Chico. He is succeeded here by J. W. Whitlock of San Francisco. It is understood that the proposed advent of the Home Telephone Company into the valley field is the cause of the creation of the new office of special agent. The duties of the special agent are to watch what the other fellow is doing. Sacramento Union, December 4, 1910.

OBITUARY.

TACOMA, WASH.—Mr. Alva C. Sands, who up to a year ago was superintendent of the Pacific Telephone & Telegraph Co. at Seattle, died on December 22.

MR. WALTER LEWIS died at his home in New Haven, Conn., on November 29. Mr. Lewis was connected with the telephone business since the organization of the first telephone system

MR. A. C. SANDS, district manager of the Pacific Telephone & Telegraph Co. for western Washington, died at Tacoma on December 22. Before being made district manager Mr. Sands was local manager at Tacoma.

NEW COMPANIES.

WAWAKA, IND. (Noble Co.).—The People's Mutual Telephone Co. has been chartered by the secretary of state. Capitalization $2,500, par value of shares $10. The incorporators are John Reidenback, Braden Franks, Bert D. Cook and William Weaver, the latter of Brimfield.

DURANGO, IA.—The Home Valley Telephone Co., a farmers' line, has filed articles of incorporation at the county recorder's office. James M. Dunn is president of the company and J. H. Denkhoff is secretary.

BROADVIEW, MONT. (Yellowstone Co.).—H. W. Bangert and Alfred Bouchard of Hedgesville, Mont., and E. B. Kingman of Broadview are the incorporators of the Treasure State Telephone Co. The company is capitalized at $25,000, par value of shares $100. W. C. Husband of Harlowtown is the incorporating attorney.

ANTHONY, N. M.—The Valley Telephone Co. of Anthony, Dons Ana county, has been incorporated by J. R. Livesay, William E. Beecher and C. B. Bosworth. The capital stock is $50,000.

GALLOPOLIS, OHIO.—The Gallopolis Telephone Co. has been chartered by the secretary of state. Capital stock $50,000, par value of shares $100. O. L. Creager, B. Buell, D. H. Morris, C. B. Snyder and S. A. Webb are the incorporators.

GREENFIELD, OHIO (Highland Co.).—A charter has been filed for the Greenfield Telephone Co., incorporated by Fay Baldwin, Wm. J. Baer, D. O. Miller, J. S. Aruott and Stanley Pike. The company has a capital stock of $50,000, par value of shares $25.

NEW CONCORD, OHIO.—The Blood River Telephone Co., incorporated by J. T. Burtons, W. H. Curd and J. T. Mitchell, will build a system in New Concord and surrounding territory.

LEXINGTON, OKLA.—Good Service Telephone Co., chartered with $15,000 capital stock by E. M. Abernathy and R. P. Wynne of Lexington; J. L. Abernathy, Purcell, and W. F. Wiley of Oklahoma City.

PROSPECT, PA.—A telephone company, known as the Prospect Telephone Co., has been organized in that place. The company has a capital of $8,000. Names of incorporators were not given, however.

ROWLANDS, PA. (Pike Co.).—The Lackawaxem & Milford Telephone Co. has been incorporated by John D. Weston and John Kuhback of Honesdale and M. C. Rowland of Kimbles. Capitalization $5,000, par value of shares $50.

OENAVILLE, TEX. (Bell Co.).—T. P. Aycock, J. S. Ross, W. S. Elliott and others are the incorporators of the Oenaville Rural Telephone Co. The capital stock is $1,000.

FINANCIAL.

SPRINGFIELD, ILL.—The Piatt County Telephone Co., of Monticello, has filed an increase of capital stock from $10,000 to $50,000.

PAVILION, N. Y.—The Pavilion Telephone Co. at the recent stockholders' meeting declared a dividend of 10 per cent. The directors were re-elected for another year with the exception of S. O. Hubbard, who is succeeded by Joseph Morrow.

VOLANT, PA.—The Plain Grove Telephone Co. has issued its annual report for the year ending December 5, 1910. It shows earnings for the year of $4,496.84. Expended for new construction, $845.93; for repairs and maintenance, $1,034.74, and for operating, $1,319.40. The cost of the plant up to December 5, 1910, is stated to be $16,367.55. The company has 304 telephones in use, being an increase of 14 for the year. The gain in pole mileage was 5 miles, and in wire circuit 10 miles. The system connects with the American Union Telephone Co. and with three Independent companies to the north, east and west.

FILLMORE, UTAH.—An amendment was filed to the charter of the Millard County Telephone & Telegraph Co., increasing the capital stock from $6,000 to $500,000, in $10 shares.

FRANCHISES.

OSBORNE, KAN.—The city council has granted a franchise to the Osborne-Cheyene Telephone Co. W. E. Gilbert, city clerk.

ELECTIONS.

CADILLAC, MICH.—The Armstrong Telephone Co. has been organized with the following officers: S. C. Colley, president; C. R. Huffman, vice-president; Floyd Ayers, secretary-treasurer.

JAMESTOWN, N. Y.—At the annual stockholders' meeting of the Chautauqua Telephone & Telegraph Co. the following officers were elected: President, G. W. Appleby; vice-president, A. J. Peterson; secretary and treasurer, A. H. Appleby.

ONOTO, W. VA.—The stockholders of the Marlinton & Stoney Creek Mutual Telephone Co. met in annual session recently and elected the following directors for the year 1911: A. C. Barlow. E. F. McGlaughlin, P. L. Carter, C. C. Baxter and R. W. Hill, Jr. After the stockholders meeting the board of directors elected A. C. Barlow, president; E. F. McGlaughlin, vice-president; Porter Kellison, secretary and treasurer.

STEELE LAKE, WIS.—The annual meeting of the Bashaw Valley Telephone Co. was held recently; 158 shares of stock were represented. The directors re-elected the officers, who are: C. R. Merchant, president; Eugene Mead, secretary; G. L. Engstrom, treasurer.